

SPECIAL METHODS OF INSTRUCTION



Class LB 1025

Book A8

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BOOKS BY

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IN PREPARATION

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Measurements of Teaching Efficiency,

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SPECIAL METHODS OF INSTRUCTION

BY FELIX ARNOLD, PH. D.

VOLUME ONE
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CHIEFLY VISUAL

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PREFACE

Ms. B. Dec. 27, 1913

SPECIAL METHODS deal with practical classroom work. Logically such methods are expressed in the form of sentences in the imperative mood, each sentence corresponding to a definite situation. General method is somewhat the same save that the sentences correspond only in a general way to a number of definite situations. Neither general nor special methods are directly concerned with aims of education, underlying principles of instruction, historical development, comparative values, and the like. Such aspects belong to the field of the theory of education. The present volume deals with special methods of instruction.

The generous latitude which is allowed, and the universal encouragement of initiative and original work which is given by the Department of Education of New York City have enabled me to try out methods in all the elementary school grades. My thanks are due to the teachers of five schools who have given aid and suggestions. Throughout the book traces are due to long association with such leaders in practical education as Principals S. Badanes, B. Cronson, W. E. Grady, W. F. Kurtz, L. Marks, R. F. McCormack, J. J. O'Regan, J. J. O'Reilly, J. E. Wade, and Superintendents A. W. Edson, E. D. Farrell, H. W. Jameson, W. H. Maxwell, and B. Veit. Suggestions on formal grammar have been given by Principal J. J. O'Reilly, one of the most practical teachers in the City. Dr. S. Badanes has read the proofs and has made corrections in the chapters on arithmetic and on language work. The literature in English and German of which I have made use will be treated critically in a separate pamphlet.

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New York City

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CHAPTER I

VISUAL APPEAL — GENERAL DIRECTIONS

Properly to present visually the subject matter of any lessons use the following:

Blackboard
Chart
Map
Model
Specimen or Object
Perception Card
Text-book

And if available,

Steroscope
Lantern
Moving Picture.

I. THE BLACKBOARD

1. The blackboard. Have the board, or the part to be cleaned washed down every day. First rub the board down dry, and remove all chalk dust from the trough at the bottom. Then go over the surface with a wet or damp rag. Whenever it seems necessary and at least once a week have the board washed down with ink or ink and water. Use the dregs from three or four inkwells. After the board has been so washed down, have any ink stains or drippings wiped off with a damp rag.

Have the board rubbers or rags cleaned every day. Have them cleaned in the school yard and not in the room, at the windows, on the stairs or against the school walls. Have all the chalk cleared off every afternoon. In the morning have the needed chalk arranged in the trough ready for use.

2. Blackboard work. Use about a third of the board for diagram, drawing, map, calendar, outline, graph, table, list of words, phonograms, dates, etc., which are to be used during the day or during several days. Make your diagram, drawing, etc., either after school sessions or before school sessions. Use white chalk for letters, words or figures. Use yellow, orange, or red crayon for under-scoring, boxing, etc.

Use about one third of the board for type problems, type sentences, spelling list, outline in history or geography, etc., which are needed for the day's work. Write such problems, sentences, list, etc., before the children are in the room. Use white chalk for letter, words or figures, and yellow, orange or red crayon for underlining.

Keep the middle third of the board free for the work of the day. If immediate use calls for it fill this third with the work to be taken up, as problems in arithmetic, sentences in grammar, model for dictation or composition, etc. The specific board work in the different subjects will be taken up under different headings, as, arithmetic, language, etc.

II. THE CHART

1. The chart. Make your chart out of white cardboard or out of oak-tag. For more permanent use buy white window shades. So that cardboard charts may last and that they may be properly hung, punch eyelets a few inches from the side and about three quarters of an inch from the top of the chart. To prevent the chart from turning or bending when hung, reinforce the back with a flat stick or slat of wood. Place the slat at the top and back of the cardboard and tack on.

If a shade is used spread glue over the shade three or four inches from the top, roll it tightly round the roller and tack it on with $1\frac{1}{2}$ or 2 oz. tacks. Mount the shade on a piece of wood about three inches wide and an inch thick.

Colored ink can easily be made. Use any colored powder and mix it with water and mucilage. Add to this one or two drops of ox-gall for a gill of the mixture. Spread the ink with a brush or use a stub pen as with ordinary ink. Use black ink for figures, letters or words.

2. Chart work. Chart work is very useful for visual appeals which are to be made again and again during the term. Make charts for tables, graphs, lists of phonograms, lists of dates, outlines in history or geography, number forms, cross section of maps, letter forms, etc. More specific material will be found under the different chapter headings.

III. THE MAP

1. Flat maps. Maps are usually supplied by the school authorities. For purposes of instruction better maps can be made by the class teacher. Make the map on the blackboard, or for more permanent use, on a shade or cardboard.

In drawing a map first sketch the outline lightly with white crayon or, for shade work, with charcoal. Fill in what is to be the specific object of the lesson, as, rivers, mountains, products, special divisions, etc. If necessary draw a water line. Now fill in the outline with a firm hand. Use white chalk for printed matter, for rivers, etc., blue crayon for water line, brown or purple for highlands, and green for lowlands. Railroads and steamship routes may be indicated with firm red lines. Ocean currents may be marked with firm blue lines. The colors may be used solidly or may be indicated by line work. Solid coloring should be very light. For the different kinds of maps read the chapter on geography.

2. Relief maps. Very durable and effective relief maps are made out of papier maché. Have a board made from 3 to 5 feet long and from 2 to 3 feet wide. To prevent warping or curving have the ends of the board paneled and the back braced with cross pieces. Outline in pencil the map to be made and coat with glue the part of the board to be covered with papier maché.

To make the needed papier maché tear newspapers into small pieces and let them soak in water over night. Squeeze the paper into a massy pulp and let a pupil pound it with a stone till the pulp is of the consistency of clay or putty. Mix with the pulp some white photo or flour paste. The papier maché will then be ready for use.

Squeeze out any water that may be in the pulp. Spread it evenly over the board, closely following the outline. Roughly put in maché for the highlands. Use the fingers to even out the highlands, valleys, lowlands, river beds, etc., so that the map assumes a more finished form.

Let the map become hard. Paint the map white and the background some other color, as blue or green. When the paint is hard shellac the entire surface. The map will then be water proof and can be washed. Different colors can be used according to the kind of map made. All colors should be fairly light.

IV. PERCEPTION CARDS

Perception cards are made out of oak-tag or card board. Backs of pads may be used. Cut up the cardboard into cards about 9 or 10 inches long and about 5 or 6 inches wide. For tables, phonograms, etc., place the basic element on the large card, and the variable elements on movable cards about 3 inches wide. Use twine to fasten the movable cards.

Other materials for visual appeal, as, models, text-books, etc., need no special description. Their use will be indicated under the different subject headings.

V. GENERAL SUGGESTIONS

Whatever is basically visual should be presented visually, and not verbally or orally. For example, the map itself should be drawn for the pupils. No verbal description should take its place. Not the rule for an example, but a type example should be worked out. Not a definition of a noun but a series of nouns should be illustrated and listed.

Whatever visual work is to be presented should be carefully prepared before the pupils enter the room. With the blackboard filled with work, charts ready and perception cards arranged and near at hand, the teacher can proceed with an air of certainty and assurance which both impels attention and secures good discipline. With definite work before him the pupil more readily settles down to class work and more quickly loses the harum-scarum images and notions of the home and the street.

Whatever material is used should be neat and clean. In fact it should be the best that the teacher can present. No slipshod work should be tolerated. Such signs of carelessness as dirty, torn maps or charts, grey blackboards, miserable, scrawly writing, or indistinct figures should not be allowed. No pupil who is unable to write large and distinctly should be permitted to write instead of the teacher. Such excuses as, 'I can't draw,' 'That's the way I always write,' and the like, should be translated into their real meaning, 'I am not fit to teach.' It requires but little practice for any teacher to attain skill in blackboard work, and in the construction of models, charts, etc. In fact such work, as in the case of kindergarten teachers, should be required of all normal pupils and of all pupil-teachers.

CHAPTER II

ARITHMETIC — VISUAL

I. THE NUMBER FOUR

1. **Counting.** Call on four pupils, all boys or all girls. Slowly explain and question as follows:

I want four boys to stand.

No, not so many. Four—one, two, three four. John, Henry, James, William. Stand up and step before the class.

This is John. (Mark on the board). This is Henry. (Another mark). This is James. This is William. One, two, three, four.



Look at the boys. One, two, three, four. Look at the marks on the board. One, two, three, four.

How many marks are there? Count them with me as I point.

Call on a number of pupils one at a time to count the boys and the marks as you point. Point to John, and pass to William. Point to William and pass to John. Begin indiscriminately with the other pupils, Henry or James. Group the pupils and direct as follows:

John and Henry, move over.

Now we have, One, two, One, two.

Altogether, One, two—three. four.

James, step closer to Henry.

Now we have. One, two, three—one.

Look at the lines on the board as I draw them.

Count them.



Make use of other objects in the room, as books, pencils, papers, panels in the door, window panes, walls of the room, corners of the

desk, etc. Have the pupils recognize and pick out four of a kind. Question them as follows:

How many pencils have I in my hand? Count them.

Harry, get me four pieces of paper. Hold them up.

Count them—John. William. Joseph. Frederick.

I want some others to count. No, not the class. Hold up hands.

Now point out four panes of glass.

Come up and touch four desks.

Show me four panels in the door. Count them.

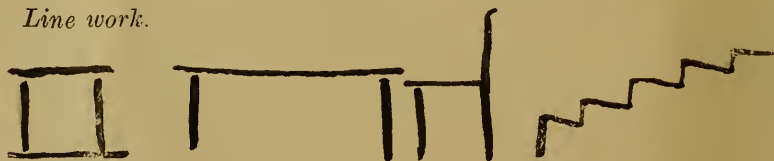
Make four white marks on the board.

Get four pencils. Hold them up.

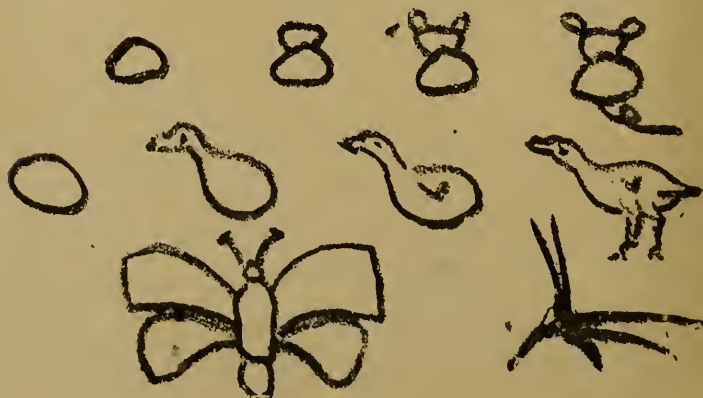
Call on individual pupils to point out, count, hold up, etc. Give the same question or task to several pupils. Pass rapidly round the class and throw questions repeatedly at parts of the class which seem to pay less attention than needed.

In the above presentation, actual objects in the classroom are used. Follow up the work by representative objects and black-board work. Draw simple figures on the board, using four strokes for each figure. Pause after each stroke and count as you make the stroke. Use figures similar to the following:

Line work.



Animals.



Leaves, objects, etc.



2. Measuring. Let pupils pace a short distance. Direct them as follows:

Who can walk from here to the door?

Take four steps—One, two, three, four.

Who else can do this? Try it, John. William, count.

Draw a line on the board, four feet long. Use colored crayon. Measure the line with a foot rule. Direct as follows:



See how many times I mark off. Count.

Who can mark off? Try it, John. Henry. Rose.

Who can count as I point? William, Mary.

Who can draw a line as big as this one?

Who is about as big as this line?

Come up, Harry. Now count. Just four feet.

Call upon a number of individual pupils. As you measure, have some pupil count for the class. Arrange squares in rows as follows:



Point to each square, and have the pupils count. Show a gallon measure, and alongside of it a quart measure. Pour four quarts of water into the gallon measure. Use glass measures if possible. Count slowly as you pour—One, two, three, four. Let the pupils count. Use the gill and the pint in this manner. Draw the measures on the board as follows:



Call upon individual pupils to note the number, count, etc.

3. Number forms. Mark four dots on the board. Make the dots two inches wide, place them two inches apart, as follows:



Have the pupils look at the dots and tell how many. Let individual pupils count the dots. Have them close eyes, and locate four dots by pointing in the air with their fingers. Direct them as follows:

Close eyes. Try to see the dots. Point them out.

Ready—One, two, three, four.

Now begin at the other side—One, two, three, four.

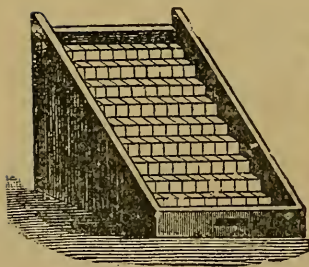
Open eyes. Look at the board. Close eyes. Point.

Now all point at the door.

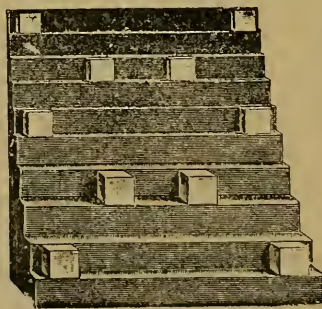
Point to the ceiling—One, two, three, four.

4. Number machines. For classroom use, the number machine should be of a good, wholesome size, about three feet square, with balls two inches in diameter. The following machines explain themselves:

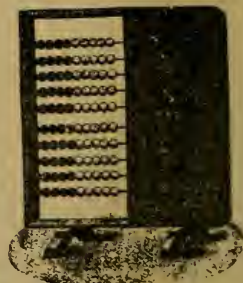
Tillich Blocks



Number steps.



Russian machine



II. ADDITION AND SUBTRACTION—NO CARRYING

1. Counting. Direct the class as follows:

I want three boys to stand. John, William, Henry, come here.

How many boys are there? Count them.

Come, James. How many now? Count, them.

Now, count as I point. One, two, three, four.

Three and one make how many? Count.

John, sit down. Now, how many?

Pass the same questions to a number of individual pupils. Do not let the class answer in chorus. Insist on rapid, individual answering. Take four books, or pencils, or papers, etc., and proceed as follows:

How many pencils have I? Count them.
I give this one to John. How many are left?
How many did I have? What did I give?
One from four equals how many?
Four less one equals how many?
Take away one from four. Count the ones left.
What is the remainder?

Take away two from four, add two and two, and question as above. Draw four cherries (or other simple objects), on the board, thus:



Rub one off, thus:



Draw it on again. Rub off some other one, as the second or third one. Let the pupils count as you draw. Repeat this process with other drawings, as the petals of a flower, steps in a stair, spokes of a wheel, etc.

2. Ratio and measuring. Direct the class as follows:

Who can take a big, long, step? Come up and try, Henry.
Can you step from here to the wall? Is your step long enough?

How many steps must you take? Count them.

Take three steps. How many more must you take to reach the wall?

Let a number of pupils take steps and pace short distances, as, from desk to wall, seat to door, etc. Call upon pupils to count as the pacing is done. Draw a four-foot line on the board, thus:



Explain and question as follows:

Which line is longer? Point to it.

Which line is shorter. Point to it.

Count the parts in the line as I point.

How much longer is this line? Count as I point.

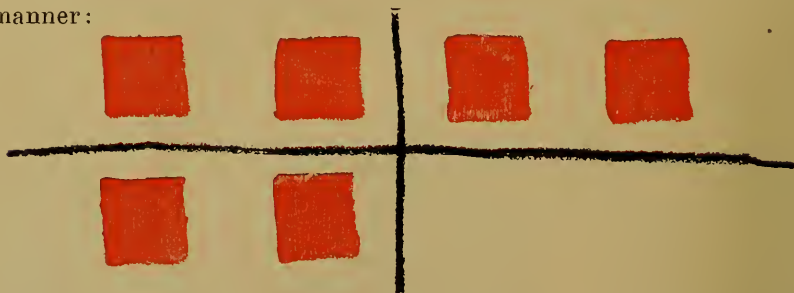
Now I add to the short line. How many parts?

Count—One and three? One, two, three, four.

Three and one? Count.

Three from four? One from four?

Let pupils use the foot rule and rule off a four-foot line, a three-foot line, a two-foot line, and a foot line. Let them count the parts in each. Deal with the following figures in the same manner:



How many squares in the first row? In the second row?

Which is bigger? How much bigger?

Which is smaller? How much smaller?

How many more in this row? Count as I point.

How many less in this row? Count.

Make use of different measures, as, gallon-quart, pint-gill, etc. Let the pupils tell how many quarts you pour into the gallon measure, how many you take out, how many are left, etc.

3. Number forms. Draw the following on the board:



Rub off one unit. Replace it. Call upon pupils to give the number of dots left after you have rubbed one off, and after you have replaced it. Draw the following number forms on the board and indicate addition or subtraction:

3 and 1

2 and 2

1 and 3

3 + 1

2 + 2

1 + 3

3 and ? = 4

1 and ? = 4

4 take away 1

4 take away 3

4 less 1

4 less 3

4 — 1

4 — 3

4 — ? = 1

4 — ? = 3

4 take away 2

4 — 2

4 less 2

4 — ? = 2

Question pupils, passing the same question indiscriminately to a number of pupils. Pupils who fail should be made to count the units. After such counting, repeat the question and ask for the answer. Repeated failure should be corrected by repeated counting.

Begin with a number which is capable of analysis, and which correlates readily with the pupil's environment, as, two, three, or four. Nothing, and one, are abstractions which should be reached slowly and which should come out of the analysis suggested. After one, two, three and four, have been studied in the manner suggested, pass to five. Then take up ten, and analyse out of this the following, in the order given: Six, nine, eight and seven. Then go on to twenty, thirty, etc., up to one hundred.

III. ADDITION AND SUBTRACTION—CARRYING, BORROWING

1. **Counting.** Arrange a series of dots on the board as follows:



Question and direct, thus:

Count up to the line. (Nine). Count past the line.
(Fourteen).

How many dots after the line? (Five) Before? (Nine).
Nine and five? Count them.

Five and nine? Count.

Write the figures on the board as follows:

$$\begin{array}{r r r r r r} 9 \text{ and } 5 & 9 & 5 & 5 \text{ and } 9 & \text{Add } 5 \text{ and } 9. \\ 9 + 5 & \underline{+5} & \underline{+9} & 5 + 9 & \text{Sum of } 5 \text{ and } 9. \end{array}$$

With the addition of 5 and 9 take up the correlated subtraction. Rub off dots and question the pupils, thus:

Count the dots.

Count them now. (With 5 rubbed off).

Count them now. (With 5 added).

How many did I rub off?

How many left? Count them.

Five from fourteen?

If I take away 5 how many left?

14 less 5? $14 - 5$ equals?

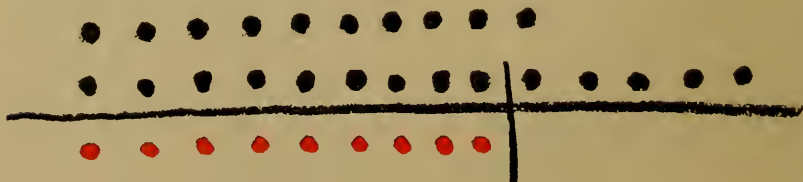
Subtract 5 from 14. Count those left.

Vary the subtrahend by making it 6, 7, 8, etc. Return to the diagram again and again and test the result by having the pupils count.

After 14, take 24. Analyse the number as follows:

$$\begin{array}{r r r} 24 = 10 + 14 & \left(\begin{array}{l} 10 \\ 14 \end{array} \right. \\ - 9 = \quad - 9 & \quad - 9 \\ \hline 10 + 5 \end{array}$$

If the children have difficulty in understanding the example, illustrate it by two rows of dots, thus:



Let the pupils give the answers of series of examples like the following:

$$\begin{array}{r} 9 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 19 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 29 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 39 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 49 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 59 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 69 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 79 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 89 \\ + 5 \\ \hline \end{array} \quad \begin{array}{r} 99 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 19 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 29 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 39 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 49 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 59 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 69 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 79 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 89 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 99 \\ - 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 25 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 35 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 45 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 55 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 65 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 75 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 85 \\ + 9 \\ \hline \end{array} \quad \begin{array}{r} 95 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ - 5 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 25 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 35 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 45 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 55 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 65 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 75 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 85 \\ - 9 \\ \hline \end{array} \quad \begin{array}{r} 95 \\ - 9 \\ \hline \end{array}$$

If pupils do not seem to get the answer return to the visual presentation. If, for example, $25 + 9$ presents too great a difficulty, simplify the 25, and arrange a series of dots as above.

2. Ratio and measuring. Draw a number of squares on the board, thus:



Compare the two areas and question as follows:

Which row is bigger?

How much bigger is it?

How much smaller is this row?

Call the squares, square feet.

How many square feet in this row? In this?

How much smaller is this row?

How much larger is this row?

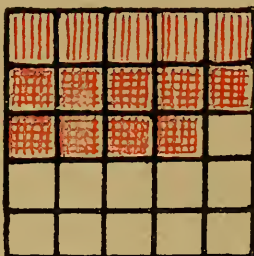
How many square feet must be added to this row to make it 14 square feet?

How many square feet must be taken away to make 9 square feet?

14 square feet less 9 square feet equals? Count them.

Take away 5 square feet from 14 square feet.

Arrange the squares as follows:



Question as above. Compare lines in the same manner. Mark off equal divisions, and let the pupils add and subtract as above.

3. Number forms. Draw the following on the board, making the dots two inches in diameter, and arranging them in squares of four, each square three inches from the other:



Have the pupils count, add and subtract. Write the following on the board:

$$\begin{array}{rclclclclclclclclclclcl}
 9 \text{ and } 5 & 9 + 5 & & 9 & 5 & 14 \text{ less } 9 & 14 - 9 & & 14 & 14 \\
 5 \text{ and } 9 & 5 + 9 & \underline{+ 5} & \underline{+ 9} & & 14 \text{ less } 5 & 14 - 5 & & \underline{- 9} & \underline{- 5}
 \end{array}$$

Question as follows:

What is the sum of 9 and 5?

What is the sum of 5 and 9?

Add 9 and 5. Add 5 and 9.

What is the difference between 14 and 9?

What is the difference between 14 and 5?

From 14 take 9. Take 5.

4. The Austrian method of subtraction. Let the pupils add up to the larger number, thus:



Direct them as follows:

Which is the larger number?

Which is the smaller number?

Add as I point, 5, 6, 7, 8, 9.

How many were added to 4?

Four and how many give 9?

Pursue the same method with 14 — 9. Make dots and let the pupils add to 9 till they get 14. Write the following series on the board:

$$\begin{array}{cccccccccc} 9 & 19 & 29 & 39 & 49 & 59 & 69 & 79 & 89 & 99 \\ \hline 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 & 5 \end{array}$$

Call upon pupils to add to 5, and mark on the board as they add. Let them add 10, 20, 30, etc., to complete the number, thus:

$$\begin{array}{ll} 5, & 1, 1, 1, 1, = 9 \\ 5, 10, & 1, 1, 1, 1, = 19 \\ 5, 20, & 1, 1, 1, 1, = 29 \\ 5, 30, & 1, 1, 1, 1, = 39 \text{ etc.} \end{array}$$

Write the figures on the board. Then question the pupils as follows:

What did we add to 5 to get 9?

How much larger is 19?

How much more must we add to get 19?

What did we add to 5 to get 19?

Let the pupils work a number of examples of the same kind, as,

$$\begin{array}{cccccccccccc} 9 & 9 & 9 & 8 & 8 & 8 & 7 & 7 & 7 & 10 & 12 & 15 \\ \hline 4 & 5 & 6 & 1 & 2 & 3 & 0 & 3 & 5 & 3 & 2 & 4 \\ \\ 29 & 39 & 49 & 58 & 68 & 98 & 37 & 47 & 57 & 20 & 32 & 65 \\ \hline 14 & 25 & 36 & 21 & 32 & 53 & 20 & 33 & 45 & 13 & 12 & 24 \end{array}$$

If the pupils hesitate, let them count up to the larger figure, and check on the board as they count.

In examples which involve 'carrying,' proceed as follows:

$$\begin{array}{r} 21 \\ 9 \end{array}$$

Count, 9, 10, 11.

How much 'over' the 1 did we count?

Carry this below.

$$\begin{array}{r} 21 \\ \hline 19 \end{array}$$

2 and carry 10

9 and 2 are 11. This is 10 too much.

Carry the 10

$$\begin{array}{r} 21 \\ \hline 19 \\ 12 \end{array}$$

10 and 10 are 20. Or, 1 and 1 are 2.

Give the pupils a great deal of practice with simple figures before going on with larger ones. Proceed with more difficult examples in the same way, thus:

$$\begin{array}{r} 321 \\ \end{array}$$

$$\begin{array}{r} \overline{58} \\ \end{array}$$

8 and 3 are 11. This is 10 too much.
Carry the 10.

$$\begin{array}{r} 321 \\ \end{array}$$

$$\begin{array}{r} \overline{58} \\ \end{array}$$

$$\begin{array}{r} \overline{13} \\ \end{array}$$

1 and 5 are 6 and 6 are 12.
This is 10 too much. Carry the 10.

$$\begin{array}{r} 321 \\ \end{array}$$

$$\begin{array}{r} \overline{58} \\ \end{array}$$

$$\begin{array}{r} \overline{11} \\ \end{array}$$

$$\begin{array}{r} \overline{63} \\ \end{array}$$

1 and 2 are 3.

$$\begin{array}{r} 321 \\ \end{array}$$

$$\begin{array}{r} \overline{58} \\ \end{array}$$

$$\begin{array}{r} \overline{11} \\ \end{array}$$

$$\begin{array}{r} \overline{263} \\ \end{array}$$

Make use of counting, measuring and number form devices as suggested in the preceding paragraphs.

5. Reading and writing of numbers. Do not begin by giving separate formal exercises in the reading and writing of numbers. Let such reading and writing be a natural feature of the work in addition and subtraction. When answers run into the tens or the hundreds, point out that the '1' is in ten's place, and so is different from the '1' in unit's place. See that the children place the figures one under the other in addition and subtraction. Make use of the following device:

H	T	U
2	3	1
1	3	2
3	1	2

$$200 + 30 + 1$$

$$100 + 30 + 2$$

$$300 + 10 + 2$$

Question the pupils somewhat as follows:

What figures take the place of the noughts?

Where is unit's place? Ten's?

What does '3' in ten's place mean?

Insist on similar accuracy in the placing of figures in multiplication and division.

In teaching Roman notation, make use of the one-cent piece, the five-cent piece, and the ten-cent piece. Spend some time in I,

(2) Carrying in 10's place—continued

<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>16</u>	<u>26</u>	<u>36</u>	<u>46</u>
<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>
<u>115</u>	<u>125</u>	<u>135</u>	<u>145</u>	<u>215</u>	<u>225</u>	<u>235</u>	<u>315</u>	<u>345</u>
<u>+8</u>	<u>+8</u>	<u>+8</u>	<u>+8</u>	<u>+8</u>	<u>+8</u>	<u>+8</u>	<u>+8</u>	<u>+8</u>
<u>115</u>	<u>125</u>	<u>135</u>	<u>145</u>	<u>215</u>	<u>225</u>	<u>235</u>	<u>315</u>	<u>345</u>
<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>	<u>+18</u>
<u>115</u>	<u>125</u>	<u>135</u>	<u>145</u>	<u>215</u>	<u>225</u>	<u>235</u>	<u>315</u>	<u>345</u>
<u>+128</u>	<u>+138</u>	<u>+148</u>	<u>+218</u>	<u>+138</u>	<u>+148</u>	<u>+158</u>	<u>+348</u>	<u>+328</u>

(3) Carrying in 100's place

<u>151</u>	<u>152</u>	<u>153</u>	<u>154</u>	<u>155</u>	<u>261</u>	<u>263</u>	<u>273</u>	<u>381</u>
<u>+81</u>	<u>+81</u>	<u>+81</u>	<u>+81</u>	<u>+81</u>	<u>+81</u>	<u>+81</u>	<u>+81</u>	<u>+81</u>
<u>151</u>	<u>152</u>	<u>153</u>	<u>154</u>	<u>155</u>	<u>261</u>	<u>263</u>	<u>273</u>	<u>381</u>
<u>+181</u>	<u>+283</u>	<u>+384</u>	<u>+483</u>	<u>+281</u>	<u>+386</u>	<u>+485</u>	<u>+384</u>	<u>+487</u>

(4) Carrying in 10's and 100's place

<u>145</u>	<u>245</u>	<u>346</u>	<u>347</u>	<u>258</u>	<u>269</u>	<u>378</u>	<u>489</u>	<u>698</u>
<u>+89</u>	<u>+89</u>	<u>+89</u>	<u>+89</u>	<u>+89</u>	<u>+89</u>	<u>+89</u>	<u>+89</u>	<u>+89</u>
<u>145</u>	<u>245</u>	<u>346</u>	<u>347</u>	<u>258</u>	<u>269</u>	<u>378</u>	<u>489</u>	<u>698</u>
<u>+289</u>	<u>+389</u>	<u>+489</u>	<u>+589</u>	<u>+689</u>	<u>+589</u>	<u>+389</u>	<u>+289</u>	<u>+189</u>

(5) *Position of the '0'*

<u>10</u>	<u>120</u>	<u>302</u>	<u>300</u>
<u>+4</u>	<u>+4</u>	<u>+4</u>	<u>+4</u>
<u>10</u>	<u>120</u>	<u>302</u>	<u>300</u>
<u>+14</u>	<u>+14</u>	<u>+14</u>	<u>+14</u>
<u>20</u>	<u>120</u>	<u>302</u>	<u>300</u>
<u>+10</u>	<u>+20</u>	<u>+30</u>	<u>+40</u>
<u>450</u>	<u>450</u>	<u>450</u>	
<u>+230</u>	<u>+300</u>	<u>+203</u>	
<u>500</u>	<u>500</u>	<u>500</u>	
<u>+230</u>	<u>+300</u>	<u>+203</u>	
<u>603</u>	<u>603</u>	<u>603</u>	
<u>+230</u>	<u>+300</u>	<u>+203</u>	
<u>98</u>	<u>198</u>	<u>397</u>	<u>486</u>
<u>+2</u>	<u>+10</u>	<u>+3</u>	<u>+14</u>

(b) *Subtraction*

(1) No borrowing

<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>	<u>95</u>
<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>
<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>	<u>95</u>
<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>
<u>325</u>	<u>425</u>	<u>525</u>	<u>625</u>	<u>725</u>	<u>825</u>	<u>925</u>	<u>335</u>	<u>435</u>
<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>	<u>—3</u>
<u>325</u>	<u>425</u>	<u>525</u>	<u>625</u>	<u>725</u>	<u>825</u>	<u>925</u>	<u>335</u>	<u>435</u>
<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>	<u>—13</u>
<u>325</u>	<u>425</u>	<u>525</u>	<u>625</u>	<u>725</u>	<u>825</u>	<u>925</u>	<u>335</u>	<u>435</u>
<u>—113</u>	<u>—213</u>	<u>—313</u>	<u>—413</u>	<u>—513</u>	<u>—613</u>	<u>—713</u>	<u>—123</u>	<u>—234</u>

(2) Borrowing in 10's place

<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>	<u>95</u>
<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>
<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>	<u>95</u>	<u>55</u>
<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—28</u>	<u>—28</u>	<u>—28</u>	<u>—38</u>	<u>—38</u>	<u>—38</u>
<u>115</u>	<u>125</u>	<u>135</u>	<u>145</u>	<u>215</u>	<u>225</u>	<u>235</u>	<u>345</u>	<u>455</u>
<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>	<u>—8</u>
<u>195</u>	<u>125</u>	<u>135</u>	<u>145</u>	<u>245</u>	<u>225</u>	<u>235</u>	<u>345</u>	<u>455</u>
<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—18</u>	<u>—18</u>
<u>225</u>	<u>235</u>	<u>245</u>	<u>255</u>	<u>265</u>	<u>275</u>	<u>285</u>	<u>395</u>	<u>495</u>
<u>—118</u>	<u>—118</u>	<u>—118</u>	<u>—128</u>	<u>—128</u>	<u>—128</u>	<u>—138</u>	<u>—138</u>	<u>—138</u>

(3) Borrowing in 100's place

<u>234</u>	<u>235</u>	<u>236</u>	<u>347</u>	<u>348</u>	<u>349</u>	<u>456</u>	<u>457</u>	<u>458</u>
<u>—81</u>	<u>—81</u>	<u>—81</u>	<u>—82</u>	<u>—82</u>	<u>—82</u>	<u>—83</u>	<u>—83</u>	<u>—83</u>
<u>234</u>	<u>235</u>	<u>236</u>	<u>347</u>	<u>348</u>	<u>349</u>	<u>456</u>	<u>457</u>	<u>458</u>
<u>—181</u>	<u>—181</u>	<u>—181</u>	<u>—182</u>	<u>—182</u>	<u>—182</u>	<u>—283</u>	<u>—283</u>	<u>—283</u>

(4) Borrowing in 10's and 100's places

<u>231</u>	<u>331</u>	<u>341</u>	<u>351</u>	<u>321</u>	<u>421</u>	<u>521</u>	<u>631</u>	<u>642</u>
<u>—56</u>	<u>—66</u>	<u>—76</u>	<u>—87</u>	<u>—97</u>	<u>—79</u>	<u>—89</u>	<u>—98</u>	<u>—53</u>
<u>231</u>	<u>331</u>	<u>341</u>	<u>351</u>	<u>321</u>	<u>421</u>	<u>521</u>	<u>631</u>	<u>642</u>
<u>—156</u>	<u>—266</u>	<u>—176</u>	<u>—187</u>	<u>—197</u>	<u>—279</u>	<u>—289</u>	<u>—398</u>	<u>—553</u>

(5) Position of the '0.'

$$\begin{array}{r}
 10 \quad 120 \quad 302 \quad 300 \quad 20 \quad 120 \quad 302 \quad 300 \quad 300 \\
 \underline{-4} \quad \underline{-4} \quad \underline{-4} \quad \underline{-4} \quad \underline{-14} \quad \underline{-14} \quad \underline{-14} \quad \underline{-14} \quad \underline{-104}
 \end{array}$$

Use the simpler form in explaining any of the examples to the pupils. If the children, for example, do not understand how to do subtraction with three figures, go back to subtraction with one figure. The same process will be found to apply. Do not proceed too rapidly towards the more difficult examples. Let the pupils understand thoroughly the different phases of subtraction with one figure before attempting more difficult examples.

IV. TABLES

1. **From addition.** Arrange sums on the board as follows:

2	3	4
2	3	4
2	3	4
2	3	4

Question the pupils, giving the same question to a number of the pupils:

Add the column.

What is your answer, John. William. Henry. Etc.

How many 2's are there?

What do they equal?

How many times is the number 2 taken?

Four 2's equal what?

What is 4 times 2?

2. **From counting.** Arrange the series on the board as follows:

2,	4,	6,	8,	10,	12, etc.
3,	6,	9,	12,	15,	18, etc.
4,	8,	12,	16,	20,	24, etc.

Indicate the number of times the 2 is taken by the following:

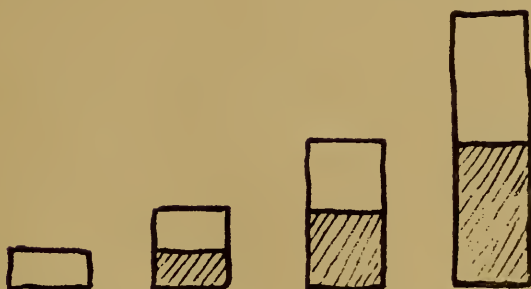
$$\begin{array}{r}
 2 \times | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 \\
 \hline
 | 2 | 4 | 6 | 8 | \text{etc.}
 \end{array}$$

Have the children count and give the 'times tables' with each count thus:

2, 4—2 2's are 4.
2, 4, 6—3 2's are 6.
2, 4, 6, 8—4 2's are 8.
2, 4, 6, 8, 10—5 2's are 10.

Show that the position of the figure in the series indicates the number of times the 2 has been taken.

3. From ratio and measuring. Draw a series of areas on the board.























Question as follows:

Which is bigger?

How many times bigger is the second one?

How many times bigger is the third one?

Arrange a series of squares in rows. Question the pupils thus:

1	   	= 4
2	   	= 8
3	   	= 12
4	   	= 16
5	   	= 20

How many 4's in the first row? In the second?

Count them.

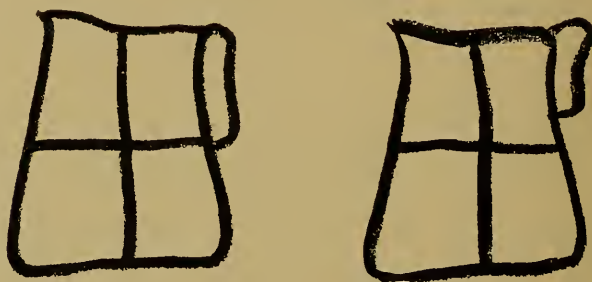
If one row has 4 square inches, how many have 2 rows?

Three rows? Four rows?

Two times 4 square inches equals what?

Three times 4 square inches? Four times?

Show a gallon measure and draw it on the board. Indicate the four quarts.



Question and explain:

If one gallon holds four quarts, what will two hold?

Seven quarts? No. Now come up and count each quart as you point.

Eight quarts? Right. Now, how many in two gallons?

Nine? No; count again.






Eight quarts? Right. How many quarts in two gallons?

Eight? Yes, that is very good. Henry count; William, Rose. Now count by two's.











In three gallons, how many quarts? In four, etc.

Call on individual pupils only. Let several answer the same question, count, etc.

4. Number forms. Draw the following, making the dots 2 inches in diameter and spacing them 2 inches apart:

1 X		= 2
2 X		= 4
3 X		= 6
4 X		= 8
5 X		= 10

Arrange the dots as follows:

1	2	3	4	5
				
				
2	4	6	8	10

Have the pupils give the table as follows:

Two times 1 are 2.
 Two times 2 are 4.
 Two times 3 are 6.
 Two times 4 are 8.

Have the tables verified by counting the number of dots, singly and by two's.

5. Formal arrangement and study. Arrange the tables on the board as follows:

1	2	=	2		1	×	2	=	2		2	×	1	=	2
2	2's	=	4		2	×	2	=	4		2	×	2	=	4
3	2's	=	6		3	×	2	=	6		2	×	3	=	6
4	2's	=	8		4	×	2	=	8		2	×	4	=	8
5	2's	=	10		5	×	2	=	10		2	×	5	=	10

Do not attempt formal study till the pupils have slowly added, counted, measured, etc. Let them see that the process 'times' means something. Then let them study the tables as follows:

Read slowly as I point. Ready:

1 2 is 2.

2 2's are 4. 2, 4.

3 2's are 6. 2, 4, 6.

4 2's are 8. 2, 4, 6, 8.

5 2's are 10. 2, 4, 6, 8, 10.

Look at the first five lines.

Close eyes. Repeat the table.

What are 4 2's? Etc.

Then let the pupils write what they have visualized. See that they copy the table correctly. Then clean the board, have the class turn papers over and repeat the table. Let some pupils recite, while others check them with papers in hand.

6 Gradation of work.

Easy	Medium	Difficult
	<i>Three</i>	
1 × 3	4 × 3	7 × 3
2 × 3	6 × 3	8 × 3
3 × 3	9 × 3	
10 × 3		
5 × 3		
	<i>Four</i>	
1 × 4	9 × 4	7 × 4
2 × 4	6 × 4	8 × 4
3 × 4		
4 × 4		
10 × 4		
5 × 4		

Easy	Medium	Difficult
	<i>Five</i>	
1×5	9×5	6×5
2×5		7×5
3×5		8×5
4×5		
5×5		
10×5		
	<i>Six</i>	
1×6	4×6	7×6
2×6	8×6	
3×6	5×6	
10×6	9×6	
6×6		
	<i>Seven</i>	
1×7	3×7	4×7
2×7	9×7	6×7
10×7	5×7	8×7
7×7		
	<i>Eight</i>	
1×8	3×8	4×8
2×8	9×8	7×8
10×8	6×8	
8×8	5×8	
	<i>Nine</i>	
1×9	3×9	4×9
2×9	5×9	6×9
10×9		7×9
9×9		8×9

After the 2, 3, 4 and 5 tables have been taught, pass to the 10 and 11 tables. The 6 and 8 tables should come next, and the 7 and 9 tables last. In the 9 tables, show that the sum of the figures of the product always equals 9, *e. g.*, 1 and 8, 2 and 7, 3 and 6, etc.

V. Multiplication

1. **One order.** (a) *No carrying.* Give examples which are simply an application of the tables, as follows:

$\begin{array}{r} 111 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 112 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 211 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 231 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 123 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 1234 \\ \times 1 \\ \hline \end{array}$	$\begin{array}{r} 2341 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 3214 \\ \times 2 \\ \hline \end{array}$
$\begin{array}{r} 122123 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 121034 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 201033 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 222222 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 333333 \\ \times 3 \\ \hline \end{array}$			

$$\begin{array}{r}
 100 \\
 \times 9 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 200 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 300 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 102 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 103 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 302 \\
 \times 1 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 304 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 201 \\
 \times 3 \\
 \hline
 \end{array}$$

Have pupils rapidly read off the answers as you point. Let pupils write the answers of two or three of the examples. Work them on the board. Note whether the pupils are writing down the answers correctly or not. Write the correct answers on the board so that the pupils may compare.

(b) *Carrying.* Give examples in which the product of the first figure with the multiplier runs over ten, thus:

$$\begin{array}{r}
 42 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 31 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 53 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 60 \\
 \times 5 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 71 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 82 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 93 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 53 \\
 \times 2 \\
 \hline
 \end{array}$$

Have pupils read off the answers and write them down as they are read. Let the pupils write down the answers. Give further examples, as follows:

$$\begin{array}{r}
 421 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 312 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 532 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 600 \\
 \times 5 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 701 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 820 \\
 \times 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 933 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 534 \\
 \times 2 \\
 \hline
 \end{array}$$

Then pass to examples in which the product of the last figure with the multiplier runs over ten. Treat the example as a simple phase of addition, with carrying.

Give examples as follows:

$$\begin{array}{r}
 19 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 28 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 46 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 238 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 249 \\
 \times 2 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 2309 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 4208 \\
 \times 3 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 30108 \\
 \times 4 \\
 \hline
 \end{array}$$

Explain the process by analysing the multiplicand, thus:

$$\begin{array}{r}
 19 = 10 + 9 \\
 \times 2 \qquad \times 2 \\
 \hline
 38 = 20 + 18 = 18 \\
 \qquad \qquad \qquad + 20 \\
 \qquad \qquad \qquad \hline
 \qquad \qquad \qquad 38
 \end{array}
 \quad
 \left|
 \begin{array}{r}
 \begin{pmatrix} 10 \\ 9 \end{pmatrix} \\
 \times 2 \\
 \hline
 18 \\
 20 \\
 \hline
 38
 \end{array}
 \right.$$

2. Two orders. As a preliminary step, give a series of examples in which the multiplier is a multiple of 10, thus:

$$\begin{array}{r} 2 \\ \times 10 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 20 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 30 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 40 \\ \hline \end{array} \quad \begin{array}{r} 22 \\ \times 10 \\ \hline \end{array} \quad \begin{array}{r} 34 \\ \times 10 \\ \hline \end{array} \quad \begin{array}{r} 56 \\ \times 20 \\ \hline \end{array} \quad \begin{array}{r} 35 \\ \times 40 \\ \hline \end{array}$$

Let the pupils read the answers and write them on the board as they are read, *e. g.*, 'No 2's are 0. One 2 is 2. Answer, 20.' Show how the same answer is obtained by analysis of the multiplicand, thus:

$$\begin{array}{r} 22 \\ \times 10 \\ \hline 220 \end{array} = \begin{array}{r} 20 + 2 \\ \times 10 \\ \hline 20 \\ 200 \\ \hline 220 \end{array} \quad \left| \quad \begin{array}{r} (20) \\ 2 \\ \times 10 \\ \hline 20 \\ 200 \\ \hline 220 \end{array} \right.$$

Give examples in which the multiplier can be analysed, thus:

$$\begin{array}{r} 22 \\ \times 11 \\ \hline 22 \\ 220 \\ \hline \end{array} = \begin{array}{r} 22 \\ \times (10 + 1) \\ \hline 22 \\ 220 \\ \hline \end{array} \quad \left| \quad \begin{array}{r} 22 \\ \times \begin{pmatrix} 1 \\ 10 \end{pmatrix} \\ \hline 22 \\ 220 \\ \hline \end{array} \right.$$

Work out the same steps without carrying the 0, thus:

$$\begin{array}{r} 22 \\ \times 11 \\ \hline 22 \\ 22 \\ \hline \end{array} = \begin{array}{r} 22 \\ \times (10 + 1) \\ \hline 22 \\ 22 \\ \hline \end{array} \quad \left| \quad \begin{array}{r} 22 \\ \times \begin{pmatrix} 1 \\ 10 \end{pmatrix} \\ \hline 22 \\ 22 \\ \hline \end{array} \right.$$

Have the pupils work out examples as follows:

$$\begin{array}{r} 34 \\ \times 11 \\ \hline \end{array} \quad \begin{array}{r} 45 \\ \times 11 \\ \hline \end{array} \quad \begin{array}{r} 78 \\ \times 11 \\ \hline \end{array} \quad \begin{array}{r} 49 \\ \times 11 \\ \hline \end{array} \quad \begin{array}{r} 23 \\ \times 12 \\ \hline \end{array} \quad \begin{array}{r} 76 \\ \times 12 \\ \hline \end{array} \quad \begin{array}{r} 34 \\ \times 13 \\ \hline \end{array} \quad \begin{array}{r} 49 \\ \times 21 \\ \hline \end{array} \quad \begin{array}{r} 89 \\ \times 32 \\ \hline \end{array}$$

3. Gradation of work.

(a)	$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 223 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 331 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 443 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 2341 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 23412 \\ \times 2 \\ \hline \end{array}$
(b)	$\begin{array}{r} 71 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 82 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 712 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 923 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 821 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 5221 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 92130 \\ \times 3 \\ \hline \end{array}$
(c)	$\begin{array}{r} 17 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 217 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 329 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 218 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 2124 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 21029 \\ \times 2 \\ \hline \end{array}$
(d)	$\begin{array}{r} 17 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 217 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 329 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 218 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 2125 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 21029 \\ \times 6 \\ \hline \end{array}$
(e)	$\begin{array}{r} 23 \\ \times 33 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ \times 22 \\ \hline \end{array}$	$\begin{array}{r} 223 \\ \times 33 \\ \hline \end{array}$	$\begin{array}{r} 331 \\ \times 22 \\ \hline \end{array}$	$\begin{array}{r} 443 \\ \times 22 \\ \hline \end{array}$	$\begin{array}{r} 2341 \\ \times 22 \\ \hline \end{array}$	$\begin{array}{r} 23412 \\ \times 22 \\ \hline \end{array}$
(f)	$\begin{array}{r} 23 \\ \times 77 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ \times 44 \\ \hline \end{array}$	$\begin{array}{r} 223 \\ \times 56 \\ \hline \end{array}$	$\begin{array}{r} 331 \\ \times 88 \\ \hline \end{array}$	$\begin{array}{r} 443 \\ \times 44 \\ \hline \end{array}$	$\begin{array}{r} 2341 \\ \times 47 \\ \hline \end{array}$	$\begin{array}{r} 73412 \\ \times 89 \\ \hline \end{array}$
(g)	$\begin{array}{r} 23 \\ \times 17 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ \times 28 \\ \hline \end{array}$	$\begin{array}{r} 223 \\ \times 36 \\ \hline \end{array}$	$\begin{array}{r} 331 \\ \times 28 \\ \hline \end{array}$	$\begin{array}{r} 443 \\ \times 27 \\ \hline \end{array}$	$\begin{array}{r} 2341 \\ \times 29 \\ \hline \end{array}$	$\begin{array}{r} 23412 \\ \times 17 \\ \hline \end{array}$
(h)	$\begin{array}{r} 23 \\ \times 71 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ \times 82 \\ \hline \end{array}$	$\begin{array}{r} 223 \\ \times 63 \\ \hline \end{array}$	$\begin{array}{r} 331 \\ \times 82 \\ \hline \end{array}$	$\begin{array}{r} 443 \\ \times 72 \\ \hline \end{array}$	$\begin{array}{r} 2341 \\ \times 92 \\ \hline \end{array}$	$\begin{array}{r} 23412 \\ \times 71 \\ \hline \end{array}$
(i)	$\begin{array}{r} 223 \\ \times 103 \\ \hline \end{array}$	$\begin{array}{r} 334 \\ \times 407 \\ \hline \end{array}$	$\begin{array}{r} 245 \\ \times 809 \\ \hline \end{array}$	$\begin{array}{r} 809 \\ \times 703 \\ \hline \end{array}$	$\begin{array}{r} 708 \\ \times 450 \\ \hline \end{array}$	$\begin{array}{r} 8009 \\ \times 508 \\ \hline \end{array}$	$\begin{array}{r} 7005 \\ \times 780 \\ \hline \end{array}$

VI. DIVISION

1. Sharing or partition. Call four pupils and ask them to stand in front of the class. Count out 16 pencils and hold them. Question pupils as follows:

How many pupils are standing in front of the room?

How many pencils have I?

Share them among the 4 boys. How many will each one get?

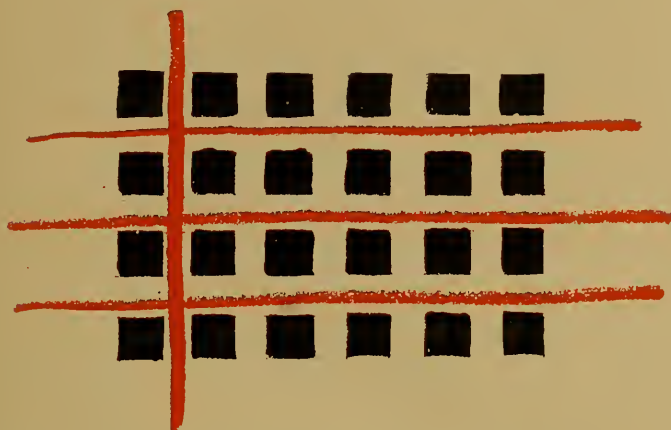
Count them.

If each boy has 4 pencils, how many pencils have the four boys?

Share 20 pencils among the four boys.

Share 24 pencils among the four boys?

Draw 24 squares on the board in rows of 6. Call on pupils to divide the squares into 4 equal parts, thus:



Call for six equal divisions. Question pupils as follows:

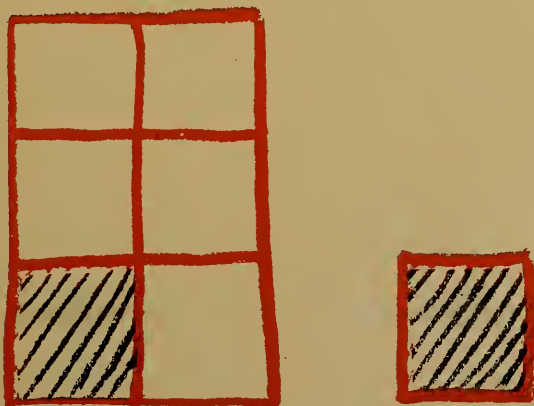
If you divide 24 into 6 parts, how many in each part?

6 into 24 = ? 4 into 24 = ?

Write the example on the board as follows:

$4 \overline{)24}$ $6 \overline{)24}$ $24 \div 4$ $24 \div 3$ 4 into 24 = ?

2. Ratio. Draw the following figures on the board:



Question pupils as follows:

Which is larger?

How much larger is it?

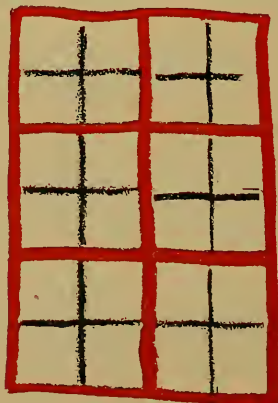
How many times will the small figure go into the large one?

Count the number of times.

Suppose the small square is cut up into 4 parts, thus:



and the large figure into 24 parts, thus:



How many times will the one go into the other?

4 into 24 = ?

$24 \div 4 = ?$

$4 \overline{)24}$

3. Measuring or division. Draw a 24-inch line on the board, and under it a 4 inch line. Indicate the inches.



Question a number of pupils. Pass the same question among several pupils.

How many inches in the longer line? Count them.
 How many inches in the shorter line? Count them.
 How many times will the one go into the other?
 Watch as I mark off every 4 inches on the longer line.
 How many divisions have I made? Count them.
 4 inches into 24 inches, how many times?
 24 inches will hold 4 inches how many times?
 4 into 24 = ? $24 \div 4 = ?$ $4 \overline{)24}$

4. **Tables.** Apply tables which are well known. Have pupils give missing factors and parts within the tables. Arrange the tables as follows:

$1 \times 4 = 4$	$1 \times \quad = 4$	$4 \times \quad = 4$
$2 \times 4 = 8$	$2 \times \quad = 8$	$4 \times \quad = 8$
$3 \times 4 = 12$	$3 \times \quad = 12$	$4 \times \quad = 12$
$4 \times 4 = 16$	$4 \times \quad = 16$	$4 \times \quad = 16$
$5 \times 4 = 20$	$5 \times \quad = 20$	$4 \times \quad = 20$

$\frac{1}{4}$ of 4 =	$\frac{1}{2}$ of 4 =
$\frac{1}{4}$ of 8 =	$\frac{1}{2}$ of 8 =
$\frac{1}{4}$ of 12 =	$\frac{1}{3}$ of 12 =
$\frac{1}{4}$ of 16 =	$\frac{1}{4}$ of 16 =
$\frac{1}{4}$ of 20 =	$\frac{1}{5}$ of 20 =

Question pupils rapidly as follows:

$7 \times 4 = ?$
 $4 \times 7 = ?$
 4 into 28?
 $\frac{1}{4}$ of 28 = ?
 Four 6's? Six 4's?
 4 into 24? 6 into 24?
 $\frac{1}{4}$ of 24? $\frac{1}{6}$ of 24?

5. **Number forms.** Arrange a series of dots on the board in rows of four:



Question as follows:

How many rows are there?

How many dots in one row? In two rows? In three?

How many dots altogether?

How many divisions of four each are there?

4 into 24 = ? $24 \div 4 = ?$ $4 \overline{)24}$

$\frac{1}{4}$ of 24 = ? 6 into 24 = ? $6 \overline{)24}$

To introduce the pupils to division, it will not be necessary to use all of the visual appeals above suggested. Use now one, now the other. Squares, dots, lines, tables, etc., will afford variety in the different lessons.

6. **Short division.** Write a series of examples on the board. Use figures which come well within the tables, thus:

$$4 \overline{)24} \quad 6 \overline{)24} \quad 3 \overline{)27} \quad 9 \overline{)27} \quad 8 \overline{)32} \quad 4 \overline{)32}$$

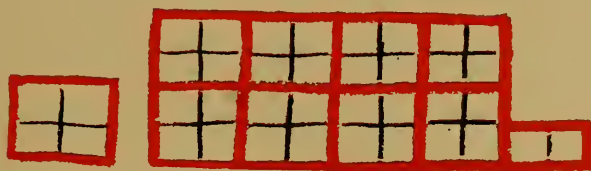
$$4 \overline{)244} \quad 6 \overline{)246} \quad 3 \overline{)273} \quad 9 \overline{)279} \quad 8 \overline{)328} \quad 4 \overline{)324}$$

$$4 \overline{)240} \quad 6 \overline{)240} \quad 3 \overline{)270} \quad 9 \overline{)270} \quad 8 \overline{)320} \quad 4 \overline{)320}$$

Introduce the notion of a remainder by examples similar to the following:

$$\begin{array}{ccccccc} 4 \overline{)4} & 4 \overline{)5} & 4 \overline{)6} & 4 \overline{)7} & 4 \overline{)8} & 4 \overline{)9} & 4 \overline{)10} \\ 4 \overline{)12} & 4 \overline{)13} & 4 \overline{)14} & 4 \overline{)15} & 4 \overline{)24} & 4 \overline{)25} & 4 \overline{)27} \end{array}$$

Illustrate the simpler examples by the following diagrams:



Let the pupils give the answers as you point to the examples. When there is a remainder, have pupils give the quotient and the number over, *e. g.* 1 and 3 over. Analyse more difficult examples in the following manner:

$$\begin{array}{r} 10 \\ 5 \\ 2 \overline{)30} \quad 2 \mid \begin{array}{l} 20 = 10 \\ 10 = 5 \\ 30 = 15 \end{array} \quad 2 \overline{)30} (10 + 5 \quad 2 \overline{)30} \\ 20 \quad \quad \quad 20 \quad \quad \quad \underline{10} \\ 10 \quad \quad \quad \underline{10} \quad \quad \quad 5 \\ 10 \quad \quad \quad 10 \end{array}$$

Have pupils give answers to the following examples:

$$\begin{array}{cccccc} 2 \overline{)32} & 2 \overline{)34} & 2 \overline{)36} & 2 \overline{)35} & 2 \overline{)37} & 2 \overline{)50} \\ 3 \overline{)75} & 2 \overline{)78} & 4 \overline{)72} & 4 \overline{)96} & 5 \overline{)75} & 6 \overline{)98} \end{array}$$

If necessary, analyse some of the examples in one of the ways suggested above.

7. Long division. Have pupils work out longer examples of the type, 6)3451. Arrange the work as in long division and analyse the steps as follows:

$$\begin{array}{r|rr}
 5 & 0 & 0 \\
 & 7 & 0 \\
 & & 5 \\
 \hline
 6 \overline{) 34} & 5 & 1 \\
 & 30 & 0 \\
 \hline
 & 4 & 5 & 1 \\
 & 4 & 2 & 0 \\
 \hline
 & & 3 & 1 \\
 & & 3 & 0 \\
 \hline
 & & & 1
 \end{array}$$

$$\begin{array}{r}
 6 \quad 3000 = 500 \\
 \quad 420 = 70 \\
 \quad 30 = 5 \\
 \quad 1 = 0 + 1 \\
 \hline
 \quad 3451 = 575 + 1
 \end{array}$$

$$\begin{array}{r|rr}
 5 & 7 & 5 \\
 \hline
 6 \overline{) 34} & 5 & 1 \\
 & 30 & \\
 \hline
 & 4 & 5 \\
 & 4 & 2 \\
 \hline
 & & 3 & 1 \\
 & & 3 & 0 \\
 \hline
 & & & 1
 \end{array}$$

Lead the pupils to more difficult examples by graded steps. Give examples of the following kind:

$$21 \overline{) 42} \quad 21 \overline{) 420} \quad 21 \overline{) 421} \quad 21 \overline{) 422} \quad 21 \overline{) 423} \text{ to } 21 \overline{) 4221}$$

Give similar series in which the divisor consists of two figures, and the dividend of some multiple, *e. g.*, $32 \overline{) 3262}$, $24 \overline{) 4872}$, etc. Question and explain as follows:

Suppose we divide 420 by 21?
 21 into 42? Into 0? 20×21 ? Work it out.
 21 into 421? Into 422? 423? 424?
 21 into 4219? Into 4220?
 How many more are needed to contain 21?
 21 into 42? Into 21?
 How many times into the 2?
 Now, note the places:

$$\begin{array}{r|rr}
 & 2 & 0 & 1 \\
 21 \overline{) 42} & 2 & 2 & 1 \\
 & 4 & 2 & \\
 \hline
 & 0 & 2 & \\
 & 0 & 0 & \\
 \hline
 & & 2 & 1 \\
 & & 2 & 1 \\
 \hline
 \end{array}$$

Give the pupils one example at a time with divisor two places, and dividend four places. Work out the example each time and note how many pupils get each step. Keep the pupils to examples of this grade of difficulty. First let the children work examples without a remainder. Introduce remainders slowly. Give dividends of five and six places after the children have attained some skill in the simpler division.

8. **The Austrian method of division.** In the Austrian method only the remainders are put down. In working out the example, the following form is used:

$$\begin{array}{r|l|l|l}
 & 2 & 1 & 7 \\
 2\ 1 \overline{)4\ 5} & 6 & 3 & \\
 \hline
 & 3 & 6 & \\
 \hline
 & 1 & 5 & 3 \\
 \hline
 & & & 6
 \end{array}$$

Orally, the explanation would run somewhat as follows:

$$\begin{aligned}
 2 \times 1 &= 2 \text{ and } 3 \text{ over,} \\
 2 \times 2 &= 4 \text{ and } 0 \text{ over;} \\
 1 \times 1 &= 1 \text{ and } 5 \text{ over,} \\
 1 \times 2 &= 2 \text{ and } 1 \text{ over;} \\
 7 \times 1 &= 7 \text{ and } 6 \text{ over, } 1 \text{ to carry.} \\
 7 \times 2 &= 14 \text{ and } 1 \text{ are } 15.
 \end{aligned}$$

The Austrian method of division assumes considerable skill in the Austrian method of subtraction. The two must go together.

9. **Gradation of work.** (a) *Short division.* (1) No remainders.

$$\begin{array}{llllllll}
 7 \overline{)77} & 8 \overline{)88} & 9 \overline{)99} & 8 \overline{)56} & 9 \overline{)63} & 6 \overline{)54} & 8 \overline{)72} & 8 \overline{)48} \\
 7 \overline{)777} & 8 \overline{)888} & 9 \overline{)999} & 8 \overline{)568} & 9 \overline{)639} & 6 \overline{)546} & 8 \overline{)728} & \\
 7 \overline{)714} & 8 \overline{)816} & 9 \overline{)927} & 8 \overline{)856} & 9 \overline{)981} & 6 \overline{)606} & 8 \overline{)808} & \\
 7 \overline{)147} & 8 \overline{)168} & 9 \overline{)189} & 8 \overline{)176} & 9 \overline{)198} & 6 \overline{)204} & 8 \overline{)512} & \\
 6 \overline{)1002} & 8 \overline{)1000} & 4 \overline{)1000} & 7 \overline{)2002} & 9 \overline{)4005} & 7 \overline{)5005} & &
 \end{array}$$

(2) Remainders. Same as above, with the dividend increased by 1, 2, 3, etc.

(b) *Long division.* (1) No remainders.

$$\begin{array}{llllllll}
 21 \overline{)21} & 21 \overline{)42} & 21 \overline{)63} & 21 \overline{)84} & 34 \overline{)68} & 42 \overline{)84} & 25 \overline{)75} & \\
 21 \overline{)210} & 21 \overline{)231} & 31 \overline{)310} & 31 \overline{)341} & 56 \overline{)560} & 56 \overline{)616} & & \\
 21 \overline{)168} & 21 \overline{)189} & 32 \overline{)192} & 43 \overline{)172} & 65 \overline{)325} & 78 \overline{)702} & & \\
 21 \overline{)1701} & 32 \overline{)1952} & 64 \overline{)1984} & 64 \overline{)2048} & 75 \overline{)3300} & 73 \overline{)2774} & & \\
 21 \overline{)2121} & 21 \overline{)4263} & 21 \overline{)4305} & 32 \overline{)6592} & 74 \overline{)22570} & & &
 \end{array}$$

(2) Remainders. Same as above, with the dividend increased by 1, 2, 3, etc.

CHAPTER III

ARITHMETIC — VISUAL (Concluded)

VII. THE FRACTION

1. **As equal division.** Draw a series of squares on the board. Cut them up on the basis of two:



Question and explain as follows:

This is 'One.' I cut it 'in half,' (Write $\frac{1}{2}$ in the half).

How many parts in this square? Count them.

How many in this square? Count them.

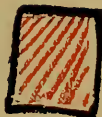
Two parts gave us the $\frac{1}{2}$. Four parts will give us the $\frac{1}{4}$.

This is $\frac{1}{4}$. What are these two parts called?

What is this part called? Count all the parts.

Proceed in a similar manner with thirds, sixths, etc. Insist on a distinct pronunciation of the 'th.'

2. **As ratio.** Draw two rectangles on the board. Divide one into two equal parts, as below:



Question as follows:

Which is larger? How much larger?

Which is smaller? How much smaller?

How many times will 1 go into 2?

What part will 2, the large figure, go into 1, the small figure?

What part of 2 is one?

If the big figure is 1, what is the small figure?

Call on individual pupils, passing the same question among a number of pupils. Allow no chorus answering.

Illustrate parts further as follows:



Question the pupils:

What part of 2 is 1?

What part of 3 is 2? Of 4 is 3?

What part of 2 is 3?

What follows the expression 'part of,' the numerator or the denominator?

Change the form of the question to '2 is what part of 3?' Show the class what part of a quart a pint is, what part of a gallon a quart is, and so on.

3. As remainder. Draw two rectangles on the board and divide them into equal parts as below:



Count the squares in the first figure. In the second figure.

How many times will the first surface fit into the second?

What is left? What part of the first surface is it?

What part of the first surface will go into the remaining part?

What is half the smaller surface? Look at it.

What is the remainder?

4. Formal study. Use the above diagram. Write a series of fractions on the board, naming the denomination, thus:

$$\text{Fourths. Denominator, 4. } \frac{1}{4} \quad \frac{2}{4} \quad \frac{3}{4} \quad \frac{4}{4}$$

$$\text{Eighths. Denominator, 8. } \frac{1}{8} \quad \frac{2}{8} \quad \frac{3}{8} \quad \frac{4}{8} \quad \frac{5}{8} \quad \frac{6}{8} \quad \frac{7}{8} \quad \frac{8}{8}$$

Question as follows:

When the denominator is 4, how many parts are taken?

Read the fractions which have 4 as the denominator.

Read the fractions which have 8 as the denominator.

What is the name of this fraction? (Point).

What is the name of this? Of this?

(Insist on rapid individual answering).

Proceed in a similar manner with thirds, sixths, ninths, twelfths, etc.

Introduce the pupils next to the name, 'numerator,' as follows:

<i>Numerator, or number of parts</i>	3
<i>Denominator, or name of fraction</i>	8

Question as follows:

What is the denominator of the fraction?

How many eighths are taken? What is the numerator?

Point to a fraction which has 3 as the numerator.

Give a fraction which has 3 as the numerator.

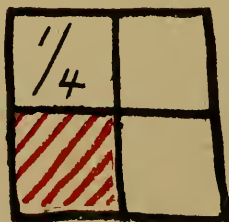
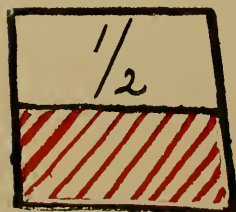
Write two or three fractions which have 3 as the numerator.

If I write 3 here, what is it called? What is it called here?

Have pupils come to the board and read and name the parts of fractions. *e. g.*, 'Two-thirds, numerator 2, denominator 3.' Point to parts of a fraction and let pupils give the name, as, numerator or denominator.

VIII. FRACTIONS, REDUCTION AND CANCELLATION

1. **Reduction.** Draw three large squares on the board, one divided into halves, one into quarters and one into eighths. Name the parts, thus:



Have the pupils visualise the lower half of each of the three figures. Call attention to the equal size. Call attention to the smallness of the parts. Question as follows:

How many parts in this half? In this half?

This part is called a half. What are these two parts called?

Why are they called quarters? Count the parts. How many parts are taken?

What does $\frac{1}{2} =$ in this figure? In this?

$$\frac{1}{2} = 4 ? \quad \frac{2}{4} = ? \quad \frac{4}{8} = ?$$

$$\frac{2 \mid \times 1}{2 \mid \times 2} = ?$$

$$\frac{2 \div \mid 2}{4 \div \mid 2} = ?$$

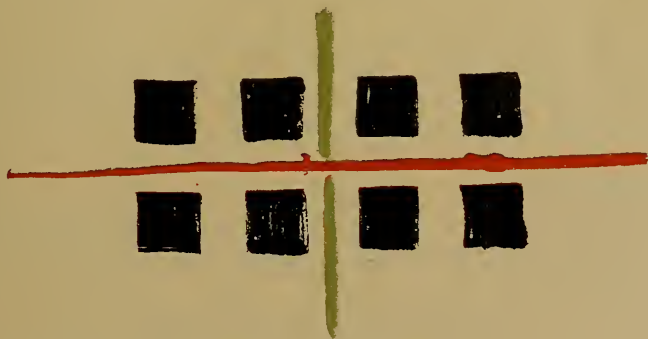
Write the following series of fractions on the board:

$$\frac{1}{2} = \frac{1}{4} \quad \frac{1}{2} = \frac{1}{6} \quad \frac{1}{2} = \frac{1}{8} \quad \frac{1}{2} = \frac{1}{10} \quad \frac{1}{2} = \frac{1}{12} \quad \frac{1}{2} = \frac{1}{14}$$

Refer to the diagram if the pupils hesitate or do not seem to understand. Show the process of obtaining the result by multiplying both numerator and denominator by the same number. Reverse the process and have pupils reduce the following series:

$$\frac{2}{4} = ? \quad \frac{4}{8} = ? \quad \frac{3}{6} = ? \quad \frac{2}{6} = ? \quad \frac{2}{8} = ? \quad \frac{3}{9} = ?$$

2. Cancellation. Draw a series of squares on the board somewhat as follows:



Apply the tables and question as follows:

What is 2×1 ? $\frac{1}{2}$ of 2?

What is 2×2 ? $\frac{1}{2}$ of 4?

2×3 ? $\frac{1}{2}$ of 6?

2×4 ? $\frac{1}{2}$ of 8?

Look. Count all the squares. Count half of them.

2 into 4? $\frac{1}{2}$ of 4?

2 into 6? $\frac{1}{2}$ of 6?

2 into 8? $\frac{1}{2}$ of 8?

Proceed in a similar manner with thirds and fourths, keeping within the tables. Pass questions rapidly among the pupils and insist on individual answering. Use the following figure for thirds:



Question as follows:

What is $\frac{1}{3}$ of these? Count them. Mark them off with the pointer.

What are $\frac{2}{3}$? Count them.

Take $\frac{2}{3}$ of 3? Of 6? Of 9? Of 18. Of 27.

Have the pupils count out the number in the two-thirds if necessary. Let them see that if one-third equals 2, for example, two-thirds will equal two times 3, or 6. Arrange a series of examples as follows:

$\frac{1}{3}$ of 6	$\frac{2}{3}$ of 6	$\frac{1}{3}$ of 9	$\frac{2}{3}$ of 9
$\frac{2}{3}$ of 12	$\frac{2}{3}$ of 15	$\frac{2}{3}$ of 24	$\frac{2}{3}$ of 36

Illustrate $\frac{1}{2}$ of $\frac{1}{2}$, $\frac{1}{2}$ of $\frac{1}{3}$, etc., by the following diagrams:



Show that $\frac{1}{2}$ of $\frac{2}{3}$ is the same as $\frac{1 \times 2}{2 \times 3}$, $\frac{2 \times 1}{3 \times 2}$. Let the pupils read the answers at sight of such examples as,

$\frac{1}{2}$ of $\frac{2}{3}$, $\frac{1}{3}$ of $\frac{3}{4}$, $\frac{2}{3}$ of $\frac{3}{4}$, $\frac{3}{4}$ of $\frac{4}{9}$, etc.

Combine factoring and cancellation:

$$\frac{6}{9} = \frac{2 \times 3}{3 \times 3} = \frac{2}{3} \quad \frac{18}{24} = \frac{2 \times 3 \times 3}{2 \times 3 \times 2 \times 2} = \frac{3}{4}$$

3. Gradation of work.

- (a) Reduce to 8ths, 16ths, 24ths, or 48ths:

 $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{3}{4}, \frac{3}{8}, \frac{5}{8}.$

Reduce to 24ths, 36ths, or 48ths:

 $\frac{1}{3}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \frac{3}{4}, \frac{5}{6}, \frac{7}{8}$

Reduce to 30ths:

 $\frac{1}{3}, \frac{1}{5}, \frac{1}{6}, \frac{2}{5}, \frac{3}{10}, \frac{8}{15}, \frac{14}{15}$

Reduce to 24ths, 36ths, or 48ths:

 $\frac{3}{4}, \frac{5}{6}, \frac{7}{8}, \frac{7}{12}, \text{etc.}$

- (b) Reduce to lowest terms:

 $\frac{3}{4}, \frac{6}{8}, \frac{10}{12}, \frac{18}{24}, \frac{24}{36}, \frac{10}{20}, \frac{240}{360}, \text{etc.}$

- (c) Change to an improper fraction:

 $1\frac{1}{2}, 2\frac{1}{2}, 3\frac{1}{2}, 1\frac{2}{3}, 2\frac{2}{3}, 3\frac{3}{4}, 5\frac{7}{8}, \text{etc.}$

- (d) Change to a mixed number:

 $\frac{3}{2}, \frac{4}{3}, \frac{5}{2}, 1\frac{1}{3}, 1\frac{5}{2}, 2\frac{8}{3}, 2\frac{9}{3}, 5\frac{0}{11}, \text{etc.}$

- (e)
- $\frac{1}{2}$
- of 4,
- $\frac{1}{3}$
- of 27,
- $\frac{2}{3}$
- of 12,
- $\frac{3}{4}$
- of 36,

 $\frac{3}{4}$ of 15, $\frac{2}{3}$ of 16, $\frac{5}{8}$ of 11, $\frac{7}{8}$ of 14, etc.

- (f)
- $\frac{1}{2}$
- of
- $\frac{1}{3}$
- ,
- $\frac{1}{3}$
- of
- $\frac{3}{4}$
- ,
- $\frac{3}{4}$
- of
- $\frac{4}{6}$
- ,
- $\frac{2}{5}$
- of
- $1\frac{5}{16}$
- , etc.

 $\frac{3}{4}$ of $\frac{5}{6}$, $\frac{4}{5}$ of $1\frac{5}{17}$, $\frac{2}{3}$ of $\frac{4}{5}$, $\frac{3}{4}$ of $\frac{7}{10}$, etc.

- (g)
- $\frac{1}{2}$
- of
- $3\frac{2}{3}$
- ,
- $\frac{2}{3}$
- of
- $4\frac{1}{2}$
- ,
- $\frac{3}{4}$
- of
- $9\frac{1}{9}$
- ,
- $\frac{5}{6}$
- of
- $11\frac{1}{7}$
- , etc.

 $1\frac{1}{2} \times 2\frac{1}{3}, 2\frac{1}{3} \times 3\frac{1}{2}, 5\frac{3}{5} \times 6\frac{2}{7}, 3\frac{3}{8} \times 8\frac{1}{9}, \text{etc.}$ **IX. FRACTIONS. SIMPLE PROCESSES**

1. Addition and subtraction. Draw a square on the board divided as follows:



Explain and question as follows:

Add one apple and one apple. One book to one book, etc.

What is one-quarter and one-quarter?

Add $\frac{1}{4}$ and $\frac{1}{4}$. Add $\frac{1}{4}$ and $\frac{2}{4}$. Count them.

Read the answers of $1\frac{1}{4} + \frac{2}{4}$, $1\frac{1}{4} + 2\frac{1}{4}$, $1\frac{1}{4} + 3\frac{1}{4}$.

$$\begin{array}{r} \frac{1}{4} \\ + \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4} \\ + \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{4} \\ + \frac{2}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{1}{4} \\ + \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{1}{4} \\ + 1\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{4} \\ + 1\frac{1}{4} \\ \hline \end{array}$$

Question in a similar manner for subtraction. Give similar lessons on sixths and eighths, using board diagrams like the one above. Pass questions rapidly round the room, giving the same question to a number of pupils, and insisting on individual answers.

Draw two figures on the board showing halves and quarters, thus:



Question, and point as you question. Give the same question to a number of individuals. Allow no chorus answering.

$\frac{1}{2}$ = how many 4ths?

Add $\frac{1}{4}$ to $\frac{2}{4}$. Add $\frac{1}{4}$ and $\frac{1}{2}$.

$$\begin{array}{r} \frac{1}{4} \\ + \frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4} \\ + \frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{2} \\ + \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{2} \\ + \frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{1}{2} \\ + \frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{3}{4} \\ + 1\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{3}{4} \\ + 3\frac{1}{2} \\ \hline \end{array}$$

Question in a similar manner for subtraction, using the terms, 'From — take, Subtract, Less.' Allow no chorus answering, and return again and again to inattentive pupils or to pupils who have missed.

Present the least common multiple as a necessary part in the addition and subtraction of fractions. Write the different denominators on the board, thus:

$$2 \quad 4 \quad 8$$

Direct the pupils as follows:

What number will contain each of the three numbers?

Why is 16 too large? Try another one.

Let the pupils find by inspection, the least common denominators in this manner.

2. Gradation of work. (a) *Identicals.*

(1) Addition.

$$\begin{array}{r} \frac{1}{4} \\ +\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{3} \\ +\frac{1}{3} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{6} \\ +\frac{2}{6} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{1}{4} \\ +\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{5} \\ +2\frac{2}{5} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{2}{8} \\ +3\frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{3}{5} \\ +\frac{4}{5} \\ \hline \end{array} \quad \begin{array}{r} \frac{5}{6} \\ +\frac{3}{6} \\ \hline \end{array} \quad \begin{array}{r} \frac{7}{9} \\ +\frac{5}{9} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{3}{4} \\ +\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 2\frac{3}{5} \\ +5\frac{3}{5} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{5}{9} \\ +3\frac{7}{9} \\ \hline \end{array}$$

(2) Subtraction.

$$\begin{array}{r} \frac{4}{4} \\ -\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{7}{8} \\ -\frac{3}{8} \\ \hline \end{array} \quad \begin{array}{r} \frac{8}{9} \\ -\frac{5}{9} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{3}{4} \\ -\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{3}{4} \\ -1\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{5}{9} \\ -6\frac{1}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 3\frac{1}{4} \\ -\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{1}{5} \\ -\frac{3}{5} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{5}{9} \\ -\frac{7}{9} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{1}{4} \\ -3\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{1}{3} \\ -3\frac{2}{3} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{5}{7} \\ -6\frac{6}{7} \\ \hline \end{array}$$

(b) *Factors.*

(1) Addition.

$$\begin{array}{r} \frac{1}{2} \\ +\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{4} \\ +\frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{3} \\ +\frac{1}{6} \\ \hline \end{array} \quad \begin{array}{r} \frac{2}{3} \\ +\frac{1}{6} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{3} \\ +1\frac{1}{6} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{3}{5} \\ +4\frac{2}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{1}{2} \\ +\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4} \\ +\frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} \frac{2}{3} \\ +\frac{5}{6} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{8} \\ +\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{1}{2} \\ +3\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{7}{9} \\ +3\frac{2}{3} \\ \hline \end{array}$$

(2) Subtraction.

$$\begin{array}{r} \frac{1}{2} \\ -\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{8} \\ -\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} \frac{7}{8} \\ -\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 1\frac{1}{2} \\ -\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{2} \\ -1\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{4}{9} \\ -5\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 1\frac{1}{4} \\ -\frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{4} \\ -\frac{3}{8} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{1}{4} \\ -\frac{7}{8} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{3} \\ -1\frac{5}{9} \\ \hline \end{array} \quad \begin{array}{r} 9\frac{1}{2} \\ -3\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{1}{5} \\ -1\frac{9}{10} \\ \hline \end{array}$$

(c) *Primes.*

(1) Addition.

$$\begin{array}{r} \frac{1}{3} \\ +\frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{2} \\ +\frac{1}{3} \\ \hline \end{array} \quad \begin{array}{r} \frac{1}{3} \\ +\frac{1}{5} \\ \hline \end{array} \quad \begin{array}{r} 3\frac{1}{3} \\ +\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 7\frac{1}{3} \\ +8\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{1}{5} \\ +3\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{3} \\ +\frac{1}{2} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{5} \\ +\frac{2}{3} \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4} \\ +\frac{2}{3} \\ \hline \end{array} \quad \begin{array}{r} 4\frac{2}{3} \\ +3\frac{3}{4} \\ \hline \end{array} \quad \begin{array}{r} 5\frac{3}{5} \\ +7\frac{2}{3} \\ \hline \end{array} \quad \begin{array}{r} 9\frac{7}{8} \\ +8\frac{2}{3} \\ \hline \end{array}$$

(2) Subtraction.

$$\begin{array}{r}
 \frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{3} \quad 3\frac{2}{3} \quad 5\frac{3}{5} \quad 9\frac{7}{8} \\
 \underline{-\frac{1}{3}} \quad \underline{-\frac{1}{5}} \quad \underline{-\frac{1}{4}} \quad \underline{-1\frac{1}{4}} \quad \underline{-1\frac{1}{3}} \quad \underline{-3\frac{1}{3}} \\
 \\
 1\frac{1}{3} \quad 5\frac{1}{5} \quad 8\frac{1}{4} \quad 5\frac{2}{5} \quad 3\frac{3}{7} \quad 9\frac{3}{8} \\
 \underline{-\frac{1}{2}} \quad \underline{-\frac{1}{3}} \quad \underline{-3\frac{2}{3}} \quad \underline{-1\frac{2}{3}} \quad \underline{-1\frac{3}{4}} \quad \underline{-3\frac{4}{7}}
 \end{array}$$

(d) *Miscellaneous.*

(1) Addition.

$$\begin{array}{r}
 17\frac{1}{12} \quad 6\frac{3}{8} \quad 48\frac{9}{9} \quad 154\frac{1}{15} \\
 \underline{+313\frac{1}{18}} \quad \underline{+55\frac{1}{12}} \quad \underline{+57\frac{1}{12}} \quad \underline{+198\frac{9}{9}} \\
 \\
 1\frac{1}{2} \quad 31\frac{1}{4} \quad 6\frac{2}{3} \quad 51\frac{1}{4} \\
 31\frac{1}{3} \quad 11\frac{1}{5} \quad 45\frac{9}{9} \quad 21\frac{9}{9} \\
 \underline{+41\frac{1}{4}} \quad \underline{+21\frac{1}{3}} \quad \underline{+13\frac{8}{8}} \quad \underline{+162\frac{3}{3}}
 \end{array}$$

(2) Subtraction.

$$\begin{array}{r}
 313\frac{1}{18} \quad 6\frac{7}{8} \quad 81\frac{8}{8} \quad 191\frac{9}{9} \\
 \underline{-17\frac{1}{12}} \quad \underline{-55\frac{1}{12}} \quad \underline{-37\frac{1}{12}} \quad \underline{-151\frac{1}{15}}
 \end{array}$$

Have the work arranged in either of the following two ways:

$$\begin{array}{r|l|l}
 1\frac{1}{2} & 6 & \\
 31\frac{1}{3} & 4 & 12 \\
 +41\frac{1}{4} & 3 & \\
 \hline
 8 & 13\frac{1}{12} & 91\frac{1}{12}
 \end{array}
 \qquad
 \begin{array}{r|l}
 1\frac{1}{2} & 6 \\
 31\frac{1}{3} & 4 \\
 +41\frac{1}{4} & 3 \\
 \hline
 & 12
 \end{array}$$

3. Multiplication. Write a series of fractions on the board, as

$$\frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{4} \quad \frac{1}{5} \quad \frac{1}{6} \quad \frac{1}{7} \quad \frac{1}{8} \quad \frac{1}{9} \quad \frac{2}{3} \quad \frac{3}{4} \quad \frac{2}{5} \quad \frac{3}{5} \quad \frac{5}{6}$$

Question the pupils as follows:

Multiply each fraction by 2. By 3. By 4.

What is $2 \times \frac{1}{2}$? $3 \times \frac{1}{3}$? $4 \times \frac{1}{5}$?

$$3 \times \frac{1}{2} = ? \quad \frac{1 \times 3}{2 \times 1} = ?$$

$$6 \times \frac{2}{3} = ? \quad \frac{2 \times 6}{3 \times 1} = ?$$

For further cases see Cancellation, above. Grade the work as in cancellation.

4. **Division.** Draw a series of squares on the board, divided as follows:



Question as follows:

How many halves in 1? Count them.

$$\frac{1}{2} \text{ into } 1 = ? \quad 1 \div \frac{1}{2} = ?$$

$$1 \div \frac{1}{2} = 1 \times \frac{2}{1}.$$

Count the fourths in 1.

$$\frac{1}{4} \text{ into } 1 = ? \quad 1 \div \frac{1}{4} = ?$$

$$1 \div \frac{1}{4} = 1 \times \frac{4}{1}.$$

$$1 \div \frac{1}{3} ? \quad 1 \div \frac{1}{5} ?$$

$$1 \div \frac{1}{4} ? \quad 1 \div \frac{1}{6} ?$$

$$1 \div \frac{1}{7} ? \quad 1 \div \frac{1}{8} ?$$

$$2 \div \frac{1}{2} ? \quad 3 \div \frac{1}{2} ?$$

$$4 \div \frac{1}{2} ? \quad 5 \div \frac{1}{2} ?$$

Pass the questions rapidly round the class. Allow no chorus answering. Show in each case that the result is obtained by inverting the divisor and multiplying. Use similar figures to show division of a fraction by a fraction. Question and proceed as follows:

How many quarters in $\frac{1}{2}$?

$$\frac{1}{4} \text{ into } \frac{1}{2} ? \quad \frac{1}{4} \text{ into } \frac{3}{4} ?$$

$$\frac{3}{4} \div \frac{1}{4} = ? \quad \frac{3}{4} \times \frac{4}{1} = ?$$

$$\frac{2}{4} \div \frac{1}{4} = ? \quad \frac{2}{4} \times \frac{4}{1} = ?$$

$$\frac{1}{2} \div \frac{1}{4} = ? \quad \frac{1}{2} \times \frac{4}{1} = ?$$

Show to the class that $4 \div \frac{1}{2} = 4 \div \frac{2}{4}$; that $12 \div \frac{1}{2} = 12 \div \frac{2}{4}$; thus:

How many 4ths in $\frac{1}{2}$?

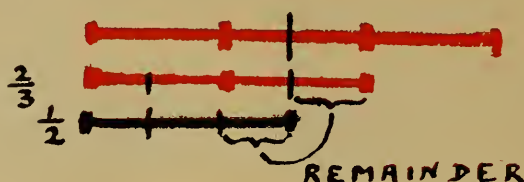
$$4 \div \frac{1}{2} = 4 \div \frac{2}{4}$$

$$4 \times \frac{2}{1} = 4 \times \frac{1}{2}$$

Which figures did we invert?

Deal with other fractions in the same manner.

If necessary, illustrate the principle of inversion by means of the following diagram:



Question the pupils as follows:

How many times does the half go into the two-thirds?

Is there anything left over?

What part is this remainder?

Suppose we do the following:

$$\begin{aligned} \frac{2}{3} \div \frac{1}{2} &= \frac{2}{3} \times \frac{2}{1} = \frac{4}{3} \\ &= 1\frac{1}{3} \end{aligned}$$

5. Gradation of work.

Divide the following by $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, etc.

2, 3, 4, 5, 6, 7, 8, 12, 34, 50, 45, etc.

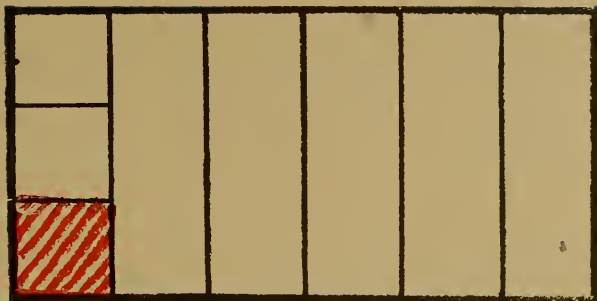
Divide the same numbers by $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{3}{5}$, $\frac{2}{7}$, etc.

$$\begin{array}{llll} \frac{1}{2} \div \frac{1}{3} & \frac{1}{3} \div \frac{1}{2} & \frac{3}{4} \div \frac{2}{3} & \frac{2}{3} \div \frac{3}{4} \\ 1\frac{1}{2} \div 2 & 1\frac{1}{2} \div 3 & 1\frac{1}{2} \div \frac{1}{2} & 3\frac{1}{3} \div \frac{1}{3} \\ 2\frac{1}{2} \div 1\frac{1}{3} & 1\frac{1}{3} \div 2\frac{1}{2} & \frac{2\frac{1}{2}}{1\frac{1}{3}} & \frac{1\frac{1}{3}}{2\frac{1}{2}} \end{array}$$

$$\begin{array}{lll} \frac{1}{2} + \frac{1}{3} & 1\frac{1}{2} + \frac{1}{3} & 2\frac{1}{2} + 1\frac{1}{3} \\ \frac{1}{2} - \frac{1}{3} & 1\frac{1}{2} - \frac{1}{3} & 2\frac{1}{2} - 1\frac{1}{3} \\ \frac{1}{2} \times \frac{1}{3} & \frac{1}{2} \div \frac{1}{3} & 1\frac{1}{2} \div 1\frac{1}{3} \\ \frac{1}{2} \div \frac{1}{3} & \frac{1}{2} \div \frac{1}{3} & 1\frac{1}{3} \div 1\frac{1}{2} \end{array}$$

X. RECTANGULAR SURFACES

In the first three or four years, use surface divisions simply as concrete illustrations of number. In the higher grades emphasize the surface aspect as such. Draw a large square on the board, two or three feet square. Measure the sides, and divide the surface into square feet, as follows:



Question the pupils as follows:

How long is the side?

How long is the first row?

How wide is the row?

How many square feet in the row?

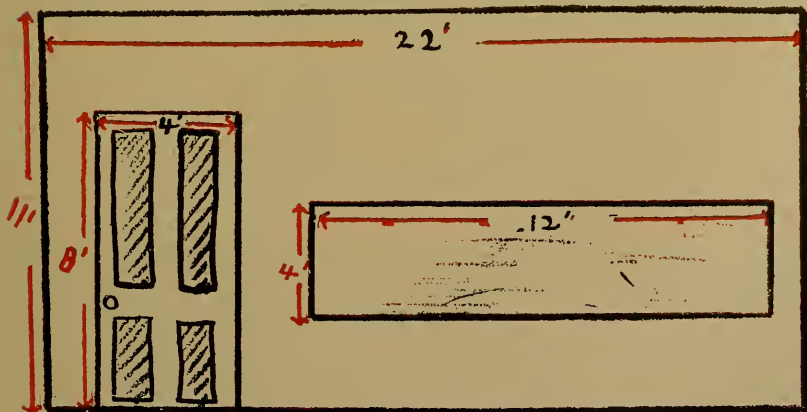
How many rows are there?

3×3 square feet = ?

If there were 4 rows, how many square feet?

4×3 square feet? 5×3 square feet?

Vary the problem and sketch a number of surfaces. Measure the blackboard, the door, the front side of the room, etc. Draw these surfaces on the board, and indicate the measurements, thus:



Let the pupils give the areas. Have them visualise the desk tops and give the approximate areas. Let them give approximate

areas of the ceiling, the window, the window panes, etc. Insist on the expression, 4×3 square feet, 12×15 square feet, etc. The unit is the square foot, the square inch, etc. If any of the pupils hesitate, draw the figure on the board, divide it into rows, mark off the divisions of one row, as in the above diagram, and question as above.

XI. DECIMAL FRACTIONS

1. The decimal point. Teach the decimal point by means of problems which involve money. Give it as a bald fact. Thus, one dollar eighty cents is written:

\$1.80
 \$1. = 1 dollar.
 \$.80 = 80 cents.

Write a bill on the board, thus:

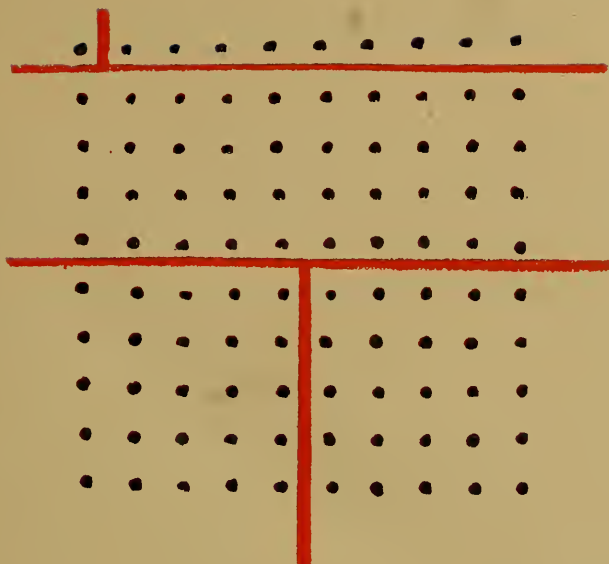
3 books @	\$1.50.....	\$4.50
2 pens @	.01.....	.02
2 pencils @	.02.....	.04
1 bot. ink @	.06.....	.06
	————	\$4.62

Cover the dollars, and call on pupils to read off the number of cents. Cover the cents, and let pupils read off the number of dollars. Allow no chorus answering. Write a number of sums on the board. Bring out the following variations:

\$2.50	\$10.50
\$2.05	\$10.05
\$2.55	\$ 1.15
\$.05	\$ 1.05
\$.55	\$10.00

Let the pupils visualise the first five amounts. Cover the dollars and ask pupils to read off the cents. Cover the cents and let pupils read off the dollars. Have pupils read off the whole amounts in dollars and cents.

2. The decimal fraction. Teach the decimal fraction directly, without reference to the common fraction, and without any laborious development from the common fraction. Draw the following figure on the board. Question as follows:



Look at the top row. How many parts?
 Look at the side row. How many parts?
 How many rows are there? How many parts in each row?
 How many parts in the whole unit?
 What is one part called? 2 parts? 3 parts?
 Count off the parts in the first row? What are they called?
 How many parts in the half? In the quarter?
 We write the parts as follows:

1.00
 .01
 .10
 .50
 .25

Have pupils read off the names of the parts as you point. Have them point out the parts as you name them.

3. Addition and subtraction. Have the pupils add as you point to the figure on the board. Point across rows of 10, across two rows, across 15 parts, etc. Receive individual answers only, and give the same question to a number of pupils. Write down the figures. Have pupils add columns, thus:

.10	.20	.15	.25
.10	.20	.15	.25
.10	.20	.15	.25
<u>.10</u>	<u>.20</u>	<u>.15</u>	<u>.25</u>

Return to the figure on the board. Cover all save one row of 10. Call on pupils to read the number of parts. Slowly cover 2 or 3 of the units. Call on pupils to give the number left. Write the figures on the board and indicate the process:

$$\begin{array}{r} .10 \\ - .03 \\ \hline \end{array} \qquad \begin{array}{r} .10 \\ - .02 \\ \hline \end{array}$$

Repeat the process, showing 3 or 4 rows at a time. Write down the figures after getting correct answers, thus:

$$\begin{array}{r} .30 \\ - .15 \\ \hline \end{array} \qquad \begin{array}{r} .40 \\ - .05 \\ \hline \end{array}$$

Give a number of such examples. Return to the figure if any of the pupils show doubt. Call attention to the position of the decimal point in each example.

4. Multiplication. Use the same figure for multiplication. Expose 2 or 3 rows and ask pupils to multiply by 2, 3, 4, 5, etc. Write down the corresponding figures and ask for answers, passing rapidly from pupil to pupil:

$$\begin{array}{r} .10 \\ \times 2 \\ \hline .20 \end{array} \quad \begin{array}{r} .10 \\ \times 3 \\ \hline .30 \end{array} \quad \begin{array}{r} .20 \\ \times 2 \\ \hline .40 \end{array} \quad \begin{array}{r} .20 \\ \times 4 \\ \hline .80 \end{array}$$

Call attention to the number of places in the multiplicand and in the product.

Carefully mark off a single row, and in that row, one part. Question the pupils as follows:

How many parts did I mark off? What do we call these parts?

What is one-tenth of these ten hundredths?

Look at them. Count them. Take a tenth. What is the answer?

Now look at it on the board: $\frac{1}{10}$ of 10 hundredths?

Or we may write it this way:

$$\begin{array}{r} \frac{1}{10} \text{ of } .10, \text{ or,} \\ .1 \text{ of } .10, \text{ or,} \\ .10 \text{ of } .10, \text{ or,} \\ .10 \\ \times .10 \\ \hline \end{array}$$

What is the answer? Look at the figure on the board.

Write the answer as a decimal.

Now what will $.10 \times .10$ equal?

No, .100 is not one hundredth. What is it?

Write one hundredth. How many decimal places should be pointed off?

$$.10 \times .10 = .0100.$$

How many places in the multiplier?

How many in the multiplicand?

How many in the product?

Vary the problem, taking .10 of .20, .30, .40, etc. Write the figures on the board. Use the diagram to show the hundredths, etc., in the product. Show visually how many places should be pointed off. Do not at this stage try to prove the answer by working out fractional multiplication of denominators. Leave common fractions out of the process till the decimals are well understood from the board diagram.

Draw the same diagram on the board, *i. e.*, ten rows of ten dots each. Give values to it, and find the value of different parts. Thus:

Suppose all the rows are worth 80, what is one row worth?

If ten 8's are 80, what is 1 worth? Count.

How many hundredths in the one row?

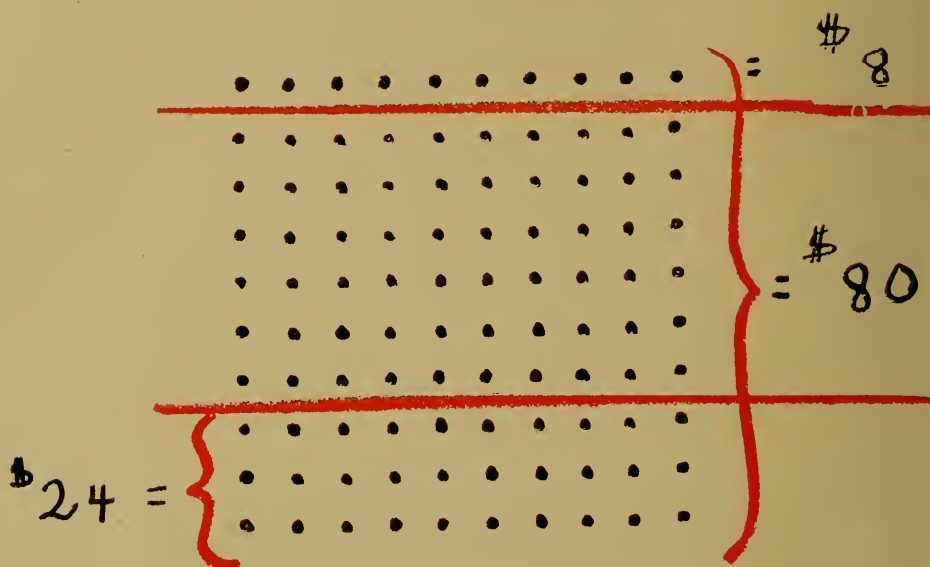
$$\begin{array}{r} \text{80} \\ \times .10 \\ \hline 8.00 \end{array} \qquad \begin{array}{r} \text{80} \\ \times .1 \\ \hline 8.0 \end{array}$$

Why do we point off two places here, and only one here?

What will two rows equal? Three? Four?

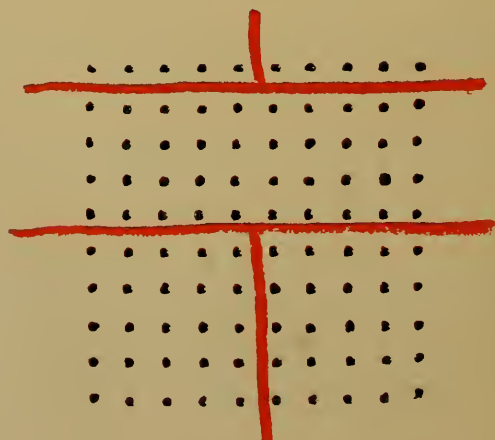
$$\begin{array}{r} \text{80} \\ \times .20 \\ \hline \end{array} \quad \begin{array}{r} \text{80} \\ \times .30 \\ \hline \end{array} \quad \begin{array}{r} \text{80} \\ \times .40 \\ \hline \end{array} \quad \begin{array}{r} \text{80} \\ \times .50 \\ \hline \end{array}$$

Show the values by marking off the rows, and show the value of the parts marked off, thus:



Vary the examples by making the whole equal 100, 200, 120, etc. Show the results by marking off on the figure.

5. **Division.** Draw the unit divided into 100 parts. Mark off a row and divide it into 2 parts, thus:



Question as follows:

How many hundredths in this row?

Divide it by 2. How many now?

10 hundredths $\div 2 = ?$

$.10 \div 2 = ?$ $2 \overline{) .10}$

Where is the decimal point placed in the answer?

How many times will 5 go into .10?

Repeat this process with 2, 3, 4, etc., rows. Write down the process in figures as soon as the several pupils have answered the same question. Give the pointing off as a purely visual process. Attempt no lengthy explanation by reduction to common fractions nor bother with the implied fractional denomination of 100. Leave this for further analysis and comparison.

Use the same figure. Mark off some portion as 5 hundredths, as above.

Question as follows:

How many times will this part go into the whole row?

How many parts in the whole row? In this row?

The 5 hundredths into the 10 hundredths?

.05 into .10? $.10 \div .05 = ?$

$$\begin{array}{r} 2. \\ .05 \overline{) .10} \quad .05 \overline{) .10} \end{array}$$

Attempt no further analysis till the facts as visually presented have been properly assimilated.

6. Common fractions and decimal fractions. Draw the unit upon the board and divide it into 100 parts. Divide it into quarters, as above.

Question pupils as follows:

How many parts in one quarter? Count them.

What does the quarter equal?

What do .25 equal?

One quarter of 100 hundredths = ?

Write 100 hundredths this way, 1.00.

What is one quarter of 1.00?

Work it out. $4 \overline{)1.00}$

What is a half equal to?

One-tenth. Three-tenths? Etc.

Find the value of one-eighth.

Find the value of one-sixth.

Write a series of fractions on the board, as,

$$\frac{1}{2} \quad .50 \quad .5 \quad \frac{1}{4} \quad .25 \quad .30 \quad .3 \quad \frac{1}{10} \quad \frac{1}{5}$$

Have the pupils read them off as decimal fractions, and as common fractions. Have pupils change them from one to the other.

7. Gradation of work. (a) *Addition and subtraction.*

(1) Examples written on the board. Except for the decimal point these are the same as regular addition and subtraction.

(2) Examples from dictation. Examples in which the numbers have all the same denomination, as, all hundredths, all thousandths, etc.

Examples in which the numbers have different denominations, as some hundredths, some thousandths, some tenths, etc.

Examples in which units enter, as 2.75, 3.5, etc.

Examples in which ciphers enter, as 1.012, 34.04, etc.

(b) *Multiplication.*

$$(1) \quad \begin{array}{r} .234 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} .342 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} .4563 \\ \times 15 \\ \hline \end{array} \quad \begin{array}{r} .4827 \\ \times 37 \\ \hline \end{array} \quad \begin{array}{r} .5092 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} .234 \\ \times 40 \\ \hline \end{array} \quad \begin{array}{r} .342 \\ \times 60 \\ \hline \end{array} \quad \begin{array}{r} .4563 \\ \times 500 \\ \hline \end{array} \quad \begin{array}{r} .4827 \\ \times 700 \\ \hline \end{array} \quad \begin{array}{r} .5092 \\ \times 550 \\ \hline \end{array}$$

$$(2) \quad \begin{array}{r} .234 \\ \times .7 \\ \hline \end{array} \quad \begin{array}{r} .342 \\ \times .9 \\ \hline \end{array} \quad \begin{array}{r} .4563 \\ \times .15 \\ \hline \end{array} \quad \begin{array}{r} .4827 \\ \times .37 \\ \hline \end{array} \quad \begin{array}{r} .5092 \\ \times .46 \\ \hline \end{array}$$

$$\begin{array}{r} 2.34 \\ \times .7 \\ \hline \end{array} \quad \begin{array}{r} .342 \\ \times .9 \\ \hline \end{array} \quad \begin{array}{r} 4.563 \\ \times .15 \\ \hline \end{array} \quad \begin{array}{r} 48.27 \\ \times 3.7 \\ \hline \end{array} \quad \begin{array}{r} 50.92 \\ \times 4.6 \\ \hline \end{array}$$

(c) *Division.*

(1)	$7 \overline{)7.789}$	$9 \overline{)81.65}$	$13 \overline{)45732}$	$35 \overline{)75832}$
	$7 \overline{)7.89}$	$9 \overline{)81.65}$	$13 \overline{)45.732}$	$35 \overline{)75.832}$
	$40 \overline{)4573}$	$30 \overline{)34.458}$	$300 \overline{)4583}$	$4000 \overline{)45.34}$
(2)	$.7 \overline{)7.770}$	$.9 \overline{)9.999}$	$.13 \overline{)3452}$	$.35 \overline{)75832}$
	$.7 \overline{)7.770}$	$.9 \overline{)9.999}$	$.13 \overline{)34.52}$	$.35 \overline{)75.832}$
	$7.7 \overline{)7.777}$	$.9.9 \overline{)9.999}$	$1.3 \overline{)34.52}$	$3.5 \overline{)75.832}$
	$.06 \overline{)360}$	$.006 \overline{)3.60}$	$.006 \overline{)0.0036}$	$.6 \overline{)0.036}$

XII. THE METRIC SYSTEM

1. Metric units. Do not attempt to derive any of the metric units from any of the other measures, as foot, yard, quart, etc. Present the units directly. Have one or more meter sticks before the pupils. Show a meter stick to the class. Measure the board with it. Measure the length of the door. Call attention to the remainders in each case. Explain and question as follows:

In France and other countries they use a measure like this.

We use the yard. They use the meter.

About how many meters long is the board? Measure it.

How many meters high is the door? What is the remainder?

How wide is the window? What is the remainder?

If we divide the measure into equal parts, we can name these remainders.

If we divide the meter into tenths, hundredths and thousandths we shall have:

1.	=	1 Meter	(M)
.1	=	1 decimeter	(d m)
.01	=	1 centimeter	(c m)
.001	=	1 millimeter	(mm)

Let the pupils use rulers having millimeters, centimeters and decimeters marked off. Accustom them to the names, decimeter, centimeter and millimeter. Do not attempt to introduce new

terms as Dekameter, Hektometer or Kilometer till the pupils are familiar with the measures above given. Work with the meter, give examples in measures of length and drill on the meter and its parts before using the other measures, Liter and Gram. Make liter measures out of pasteboard. Have a metric chart before the pupils.

2. Reduction. Accustom the pupils to read off everything given, in terms of the Meter, Liter or Gram, as the case may be. Measure several of the pupils, and write down their heights in centimeters. Write on the board what the heights of boys and girls should be at different ages, *e. g.*, 10 years, B.132.6 cm, G.131.5; 11 years, B. 137.2, G. 136.6; 12 years, B. 141.7, G. 145.2; 13 years, B. 147.7, G. 149.2; 14 years, B. 155.1, G. 153.2. These are standard heights of boys and girls in terms of cm. Let the pupils read them off in terms of the meter. Let them see the equivalents written both as 1.326M, and as 1 M 326. Have the centimeters read off also in terms of decimeters and millimeters. Measure the length of the room, the width, the height of the door, the length and breadth of the window, the length and breadth of the board, etc. Write down these measurements in terms of the meter, and have them read off in terms of the decimeter, centimeter and millimeter. Give similar exercises in Dekameter, Hektometer and Kilometer readings. Treat the Liter and Gram in a similar manner.

3. Equivalents. Treat equivalents on a unitary basis. Have on the board, or on a chart, a table of equivalents, thus:

1 M	=	39.37 inches.
1 Km	=	0.62137 miles, or 3280 feet, 10 inches.
1 L	=	0.908 dry qts., or 1.0567 wet qts.
1 Kg	=	2.2046 pounds.
<hr/>		
1 in.	=	2.540 centimeters.
1 ft.	=	0.3048 meters.
1 yd.	=	0.9144 meters.
1 mi.	=	1.6093 Kilometers.
1 qt.	=	0.94636 liters (wet).
1 gal.	=	3.7854 liters.
1 lb.	=	0.45359 Kilos.
1 qt.	=	1.1012 liters (dry).

Let the pupils refer to these tables while they are working their examples. If the examples call for the number of meters in a 30-yd. dash, the pupil refers to his table for the value of 1 yard in terms of the meter. Similar tables can be constructed for monetary equivalents.

4. Gradation of work. Insist that no matter in what terms given, each of the measures should be written in terms of the unit, Meter, Liter or Gram.

(a) *Addition and subtraction.*

- (1) All measurements of the same denomination, *e. g.*, all cm or Kg or ml, etc.
- (2) All measurements of either of two denominations, *e. g.*, dm and cm or cm and mm, etc.
- (3) Measurements of any of three or four denominations.

(b) *Reduction.*

Reading of any measure in terms of the unit, or any other denomination.

Change first from dc to cm, from cm to mm, etc., till some fluency is acquired. Rapid reading in different terms and writing of numbers of examples is necessary.

(c) *Equivalents.*

- (1) Change within the given table of equivalents directly, *e. g.*, Meters to inches, Kilos to pounds, yards to Meters, etc.
- (2) Changes which come within the table of equivalents only indirectly, *e. g.*, Meters to yards (result in inches changed to yards), cm to feet and inches (cm changed to M, then to inches, then to feet and inches), etc.

XIII. COMPOUND NUMBERS

1. Denominate units. Some of the more common measures should be in the room. In addition, the blackboard and charts should present diagrams of the measures with their subdivisions. Emphasise the use of such measures as are common in business and household activities. Questions such as the following may be used:

How do you buy your milk?

How much does a bottle hold?

Are there any smaller bottles?

How much does a small bottle hold?

Look at these different bottles. What were they used for?

Suppose you wanted to buy apples?

How does the grocer buy apples? Why?

What measure is used in selling sugar? Coffee? Flour?

How do the wholesale dealers buy and sell flour?

2. Reduction. In the lower grades use denominate units in the application of the different tables. Thus, the number of pints to a quart will apply the 2 table, feet to a yard the 3 table, quarts to a gallon the 4 table, school days the 5 table, working days the 6 table, weekdays the 7 table, quarts in the peck the 8 table, square feet in a square yard the 9 table, dimes in a dollar the 10 table, months in a year the 12 table. Cents in a nickel, weeks in a month, inches in a foot, ounces to a pound, etc., can be similarly used. Illustrate reduction by such diagrams as the following:



Gallon



4
Quart



2
Pint



4
Gill



Bushel



4
Peck



8
Quart



2
Pint

While the pupils are answering questions, have the tables arranged as above, from left to right. Pass such questions as the following among the pupils:

Change 5 gallons to quarts. 2 bushels to pecks.
 How many pints in 6 quarts? Gills in 3 pints?
 In one pint, how many gills? In 2? 3? etc.
 How many gills in 3 pints and 1 gill?
 In 3 pints alone? Add the extra gill. How many?
 Pints in 5 quarts and 1 pint? In 5 quarts?
 Quarts in 6 gallons and 3 quarts? In 6 gallons alone?

Keep to descending reduction by such examples as these:

Bought 3 qts. of milk and sold 3 pints. Pints left?
 Out of 7 gallons of vinegar, 3 quarts leaked out. Qts left?
 Out of 6 bushels of apples, 5 qts. rotted. Qts. left?
 Bought 3 gallons milk. Had 2 qts. left. Qts. sold?

Treat ascending reduction in a similar manner. Reverse the above examples. Keep to two orders till the pupils are more or less skilled in the reductions. Introduce more difficult reductions as follows:

6 quarts	5 pints
8 pints	5 gills
4 bushels	13 pecks
7 pecks	25 quarts

Show how the above are the results of addition and multiplication, and that there is nothing involved more than simple reduction. Division is similarly nothing more than a form of reduction and should be so taught. Thus:

	4	2
Gal	Qts.	Pts.
4)3	2	1

may be done either by continuous reduction or by one reduction before division. Explain the former as follows:

How many quarts in 3 gallons?
 In 3 gallons and 2 quarts?
 $14 \text{ quarts} \div 4 = ?$
 What is the remainder?
 How many pints in the remainder?
 In the 2 quarts and the 1 pint?
 4 into 5 pints?

In the single reduction, the gallons, quarts and pints are reduced to pints, divided by 4 and changed back to gallons, quarts and pints. Refer to the diagram whenever the pupils do not seem to understand the reason for the reduction.

3. Gradation of work. (a) *Reduction descending.*

- (1) Two steps, as: 3 qts. to pints; 5 gal. to qts., etc.
3 qts., 1 pint., to pints; 5 gal., 2 qts., to qts., etc.
- (2) Three steps, as: 3 qts., to gills; 5 gal. to pints, etc.
3 qts., 1 pt., to gills; 5 gal., 2 qts., to pints, etc.
3 qts., 1 pt., 3 gills to gills, etc., etc.
- (3) Subtraction, as: From 3 qts. take 1 pint.
4 gal.—7 qts.=? etc.
From 3 qts. 1 pt., take 1 qt. 1 pt.
From 4 gal. 1 qt., take 2 gal. 3 qts.
- (4) Division, as: Share 4 gallons among 6 people.
Divide 3 qts. 2 pints. by 5.

(b) *Reduction ascending.*

- (1) Two steps, as: How many quarts in 15 pints?
Change 17 pecks to bushels, etc.
- (2) Three steps, as: Change 56 inches to yards, feet and inches.
- (3) Addition and multiplication, two orders, three orders, etc.

Have the pupils indicate the denominations as follows whenever they have to work out the example:

	4	2	4
<i>Gal.</i>	<i>Qts.</i>	<i>Pts.</i>	<i>Gills</i>
	4	8	2
<i>Bu.</i>	<i>Pks.</i>	<i>Qts.</i>	<i>Pts.</i>

XIV. PERCENTAGE

1. Percentage. Treat percentage simply as a way of writing decimal fractions of hundredths denomination. Write a series of decimal fractions on the board as follows:

.34 .22 .47 .84 .75 .94 .99 .56 .71 .18

Have them read as hundredths and as percents. Vary the form, thus:

.80 .70 .40 .50 .05 .08 .09 .03 .02 1.00

Introduce the aliquot parts and have them read off as hundredths, as percents and as fractions:

.25 .75 .12½ .37½ .87½ .16⅔ .83⅓ .33⅓ .66⅔ .14⅔

Give simple problems. Arrange the work on the board as follows:

$$\begin{array}{r} 2\% \text{ of } 36 = .02 \times 36 = \begin{array}{r} 36 \\ \times .02 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} \frac{1}{2}\% \text{ of } 36 = \frac{1}{2} \times .36 = \begin{array}{r} 36 \\ \times .001\frac{1}{2} \\ \hline \end{array} \end{array}$$

2. Interest. Explain simple examples in interest, as: Interest of \$36 for 2 years at 2%. Question as follows:

For 1 year what per cent. interest?

For 2 years what is the per cent.?

For half a year? For six months?

Interest of \$36. for 2 years at 2%?

What is 4% of \$36.?

What is 4×36 ? Point off 2 places.

Explain by cancellation such examples as: Interest of \$48 for 2 years, 5 months, 13 days, at 2%. Arrange the explanation on the board as follows:

$$\begin{array}{rcl} 2 \text{ yrs.} & = & 720 \text{ days} \\ 5 \text{ mos.} & = & 150 \text{ days} \\ 13 \text{ days} & = & \underline{\hspace{1cm}} \text{ days} \\ & & 883 \text{ days} = \frac{883}{360} \text{ years.} \end{array} \qquad \frac{883}{360} \times .02 \times \$48.$$

Question the pupils as follows:

Where do you get 720 days? 150 days?

Why do you divide by 360?

For what time is the 2%?

Why do we multiply it by $\frac{883}{360}$?

How else can we write .02?

3. Gradation of work. (a) *Percentage.*

What is 2% of 36? What is 20% of 36?

What is $\frac{1}{2}\%$ of 36? What is 50% of 36?

Take $2\frac{1}{2}\%$ of 36. Take 130% of 36.

What is the difference between 2% of 36 and $\frac{1}{2}\%$ of 36?

What is the difference between $\frac{1}{2}$ and $\frac{1}{2}\%$ of 36?

What is $2\frac{1}{2}\%$ of $2\frac{1}{2}$ dozen? (Gross, etc.)

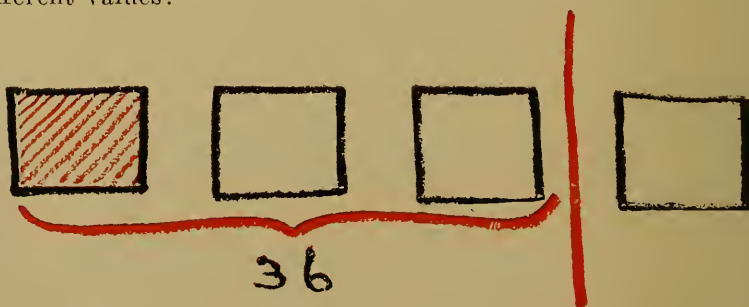
(b) *Interest. (Amount).*

Prin.	Time	Rate
\$48.	3 yrs.	2%
\$48.	4 yrs.	2%
\$48.	2 yrs. 6 mos.	$2\frac{1}{2}\%$
\$48.	1 yr. 3 mos. 15 days	3%
\$48.	7 mos. 15 days	$3\frac{1}{2}\%$
\$48.	2 yrs. 15 days	$4\frac{1}{2}\%$

What is the interest of \$48.50 from June 10, 1912, to February 8, 1915, at 5%?

XV. EQUATIONS

1. **The equation.** In the fourth and fifth school years treat the equation as a sight problem. Thus show 3 parts and give them different values:



Question as follows:

If three parts equal 36, what does one part equal?

If three-quarters equal 36, what does one-quarter equal?

How many parts are there? What is 1?

Look at the board. How many parts? What is one?

In the three-quarters how many parts?

What is one?

In three-sevenths, how many parts? In three-fifths?

When any of the pupils show hesitation, ask for the number of parts and draw the corresponding diagram on the board. From this get the value of the one part. In the higher grades lay stress on the equation as such. Illustrate a simple problem, as: If 2 lbs. cost 36c, what will 1 lb. cost? as follows:



$$2 \text{ lbs.} = \$.36$$

$$1 \text{ lb.} = \$.18$$

Question as follows:

By what did I divide the 2 lbs.?

By what did I divide the .36?

Both sides of the equation were divided by what number?

Suppose 3 lbs. cost .36, what number would have to be the divisor?

$$\div 3 \mid 3 \text{ lbs.} = \$.36$$

$$1 \text{ lb.} = \$.36$$

Repeat the process with an equation of the form, $\frac{1}{2}$ lb. costs \$.36:

$$\frac{1}{2} \text{ lb.} = \$.36$$

$$1 \text{ lb.} = \$.72$$

By what did I multiply $\frac{1}{2}$ lb.?

By what did I multiply the \$.36?

Both sides of the equation were multiplied by what number?

$$\times 2 \mid \frac{1}{2} \text{ lb.} = \$.36$$

$$1 \text{ lb.} = \$.72$$

Give an example like: If $\frac{3}{4}$ of a number equals 12, what is the number? Explain as follows:

$$\frac{3}{4} \text{ No.} = 12$$

$$\frac{1}{3} \text{ of } \frac{3}{4} = \frac{1}{3} \times 12$$

$$4 \times \frac{1}{4} = 4 \times 12$$

How many parts are there?

Why do you take $\frac{1}{3}$ of $\frac{3}{4}$?

One part = ?

Four parts = ?

Suppose we arrange the work as follows:

$$\begin{array}{rcl} \frac{3}{4} \text{ No.} & = & 12 \\ \div 3 & | & \frac{3}{4} = 12 \\ & & \frac{1}{4} = 4 \\ \times 4 & | & \frac{1}{4} = 16 \end{array}$$

Why do we divide both sides of the equation by 3?

How many parts are there?

If we divide the one side by 3, by what must we divide the other side?

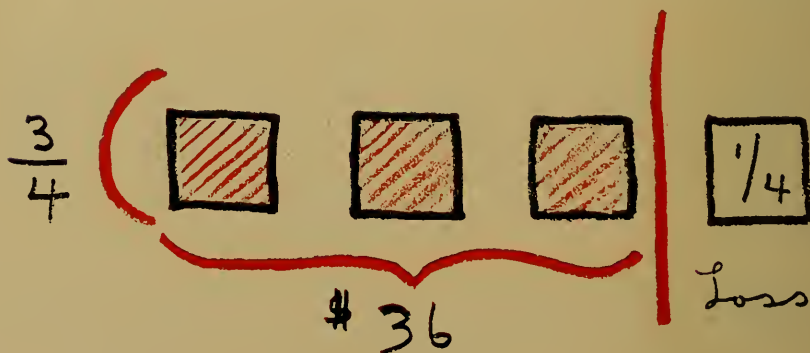
Why multiply both sides by 4?

Insist on the three steps to every equation, thus:

$$\begin{array}{rcl} (1) & \frac{3}{4} \text{ No.} & = 36 \\ (2) & \frac{1}{4} & = 12 \\ (3) & \frac{4}{4} & = 48 \end{array}$$

(N. B.—The form of explanation, 'If $\frac{3}{4}$ of the number is 36, $\frac{1}{4}$ is $\frac{1}{3}$ of 36, or 12,' is mathematically and logically incorrect, since it assumes the $\frac{1}{4}$. The reason for the $\frac{1}{4}$ and the process by which it is obtained on the basis of the $\frac{3}{4}$, is really the most important part of the operation. The pupil will just as readily assume $\frac{1}{3}$ as $\frac{1}{4}$. Both sides of the equation require explanation).

Explain profit and loss by some diagram such as the following:



Question as follows:

How many fourths in the cost? Fifths? Sixths?

If we lose a quarter, how many quarters left?

If we lose a quarter, how many quarters in the selling price?

If we lose a fifth? A sixth? A seventh? An eighth?

How many fourths in the selling price?

How much is the selling price?

What is the equation?

Suppose you had gained a fourth, what would be the selling price?

Form the equation.

2. Gradation of work.

12 is $\frac{3}{4}$ of what number? (*More than, Less than*)

36 is $\frac{2}{3}$ of what number?

48 is $\frac{3}{8}$ of what number?

12 is $\frac{5}{6}$ of what number? (*More than, Less than*)

36 is $\frac{7}{9}$ of what number?

48 is $\frac{7}{8}$ of what number?

$21\frac{1}{2}$ is $\frac{1}{2}$ of what number? (*More than, Less than*)

$31\frac{1}{3}$ is $\frac{2}{3}$ of what number?

$\frac{2}{3}$ is $\frac{3}{4}$ of what number? (*More than, Less than*)

$\frac{3}{4}$ is $\frac{2}{3}$ of what number?

S. P. \$360. Loss .25 Cost?

S. P. \$360. Gain .25 Cost?

S. P. \$360. Loss .15 Cost?

S. P. \$360. Gain .15 Cost?

XVI. GENERAL SUGGESTIONS

In selecting material which is to be used as the basis of the work in arithmetic use objects and parts of situations such as the following:

I. Indeterminate units.

- (a) Things in the room, as number of children, seats, corners, pens, pencils, books, papers, etc.
- (b) Special material as blocks, splints, beads, etc.
- (c) Industries in the neighborhood, as buying and selling (butter, bread, eggs, milk, rolls, potatoes, meat, etc.), baking, manufacturing, etc.
- (d) Things and activities in the home, as brothers, sisters, chairs, tables, wages, rent, expenses, savings, cooking, sewing, playing, etc.

- (e) Correlated subjects, as geography (areas, products, population, exports, imports, duties, etc.), science (measures, etc.), reading, etc.
- (f) Pictures and the elements in them, as boys or girls in action, animals, etc.; things of interest to children, as toy trees, houses, flowers, etc.

II. Determinate units.

- (a) Money and values in buying and selling, rent, expenses, bills, etc.
- (b) Common measures, as pint-quart, quart-gallon, quart-peck, foot-yard, inch-foot, ounce-pound, etc.
- (c) Measures of time, as day-week, week-month, month-year, minute-hour, etc.

III. Abstract units, as dots, squares, rectangles, etc.

IV. Figures and board work with figures.

Present the different problems visually, but do not stop there. Use manual and oral appeals to bring out the aspects which were presented visually. Use the visual means of appeal in all the grades, but emphasise this appeal especially in the first, second, third and fourth school years. After that make a greater use of the manual appeal. Supplement the sensory appeals in development by adequate drill and review. Above all, take time and present the work in graded steps. Analyse the difficulties of the work and break it up into small parts. Whenever necessary, take one or more lessons to present the topic in hand.

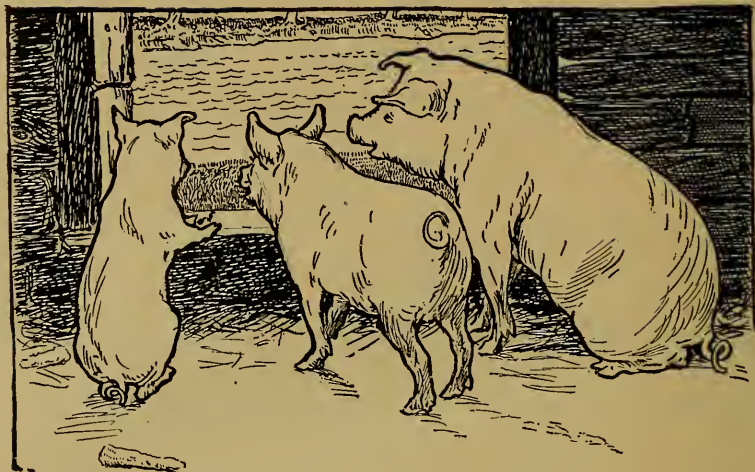
CHAPTER IV

READING AND MEMORY—VISUAL

I. READING

1. Content meaning. Introduce the lesson without books. Tell the story of the lesson. Bring out the meaning of the content by dramatic gestures and by blackboard drawings. If a chart or finished blackboard illustration is used, point to the scenes, background, action, figures, etc., as you tell the story. If the illustrating is done while the story is being told, sketch rapidly without any attempt at finished work. The story of the Three Piggy Wigs would be illustrated with a sketch somewhat as follows:





One night the wind blew hard,
and shook the apple trees,
and all the little apples | fell off.

When the Pigs awoke (in the morn-
ing,) they looked (out of the window,)
and saw all the little red apples
(on the ground,) and they said,
“We will go (across the river,)
and eat little red apples,
and make ourselves fat.”

The story would accompany the blackboard work somewhat in this manner :

Once upon a time three little piggies lived in a house. (Draw the house).

See, now inside of this house were the three piggies, big piggy wig, middling piggy wig, and little piggy wig. There they are, inside of their nice little house.

Now, near the house was a river. (Draw river). On the other side of the river was a big field with six apple trees upon it. (Draw field, with six apple trees on it). Some of the apples were on the trees. (Draw the apples), and some were on the ground. (Draw the apples on the ground).

Across this river was a bridge made of wood. (Draw bridge).

For the story of Abraham Lincoln, the drawing of a cabin and thick woods would suffice. The following illustration would do. Make no attempt at finished work.



Give the story somewhat as follows :

Lincoln's parents lived in a cabin. (Draw cabin).

Now, all around were woods. (Draw forest). Lincoln would often hunt in these woods and shoot wild game, as birds, rabbits, etc. (Draw rabbit running through bushes).

WORK AND SORROW

JAMES BALDWIN

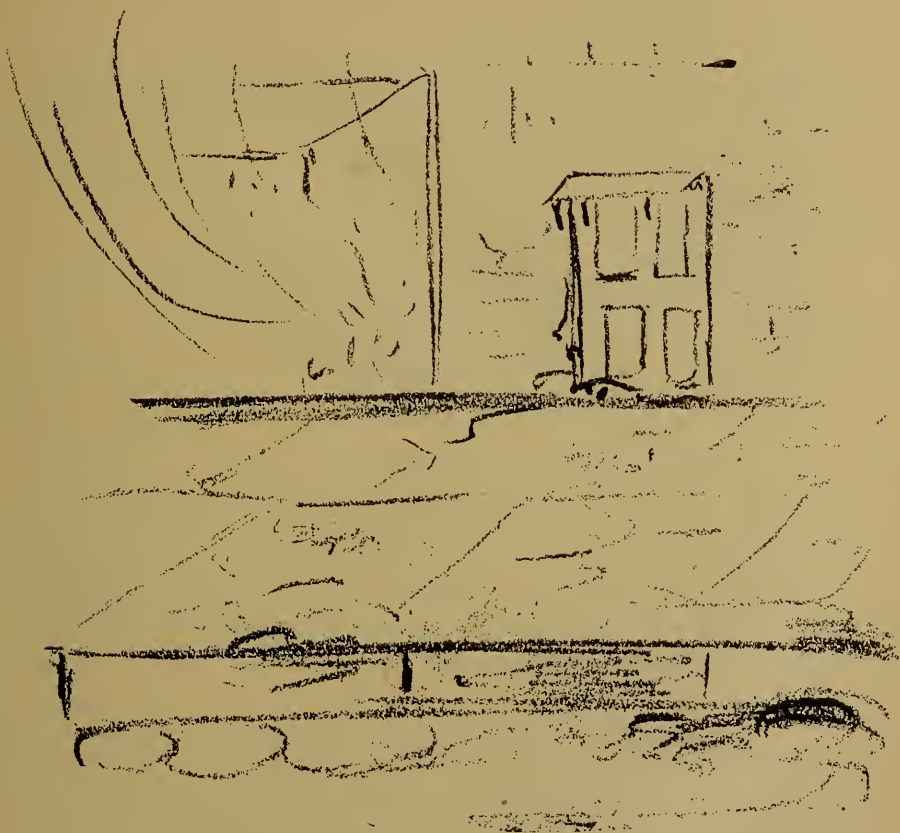
(In the autumn,) just after Abraham Lincoln was eight years old, his parents left their Kentucky home and moved (to Spencer County,) (in Indiana.)

It was not yet a year since Indiana had become a state. Land could be bought very cheap, and Mr. Lincoln thought that he could make a good living (for his family.) He had heard also that game was plentiful (in the Indiana woods.)

It was not more than seventy or eighty miles (from the old home) (to the new.) But it seemed very far indeed, and it was a good many days before the slow-moving wagon reached its journey's end. (Over a part of the way) there was no road, and the movers had to cut a path (for themselves) (through the thick woods.)

When they wanted to move there were no roads. Roads had to be cut through bushes and trees. (Rub out some of the trees, and draw fallen trees, bushes, etc.)

In the story of The Little Match Girl, give the idea of cold and desolation by indicating snow and ice, thus:



Emphasise the idea of cold in the story:

The streets were full of snow. Snow covered the doorsteps. (Draw snow, and icicles on doorways).

The wind was blowing (indicate wind by a few strokes on the board), and the cold snow was falling. (Draw snow coming heavily down).

THE LITTLE MATCH GIRL

HANS CHRISTIAN ANDERSEN

1. It was terribly cold; it snowed and it was almost dark; it was the last evening (of the year,) New Year's Eve. (In the cold and gloom) a poor little girl, (with bare head) and bare feet, was walking (through the streets.) When she left home she certainly had slippers on; but of what use were they? They were very big slippers; her mother had used them.

2. The little maid had lost them as she hurried (across the street,) when two carriages came rattling by. One slipper was not to be found again, and a boy ran away with the other. He said he could use it (for a cradle,) some day, when he had children (of his own.)

3. So now the little girl went on, and her little naked feet were quite red and blue (with the cold.) (In an old apron) she carried a number (of matches,) and a (bundle of them) (in her hand.) No one had bought anything of her all day, and no one had given her a penny. Shivering with the cold and hunger, the poor little girl crept along, a picture of misery.

4 The snowflakes fell on her long yellow hair, which curled prettily (over her neck;) but she did not think of her curls now. (In all the windows) lights were shining, and there was a glorious smell of roast goose, for it was New Year's Eve,—yes, she thought of that!

Illustrate the disposition of Rip van Winkle by the following sketch:



2. Visual appreciation of words, phrases and sentences. Have your book interlined so as to be able rapidly to write words, phrases and sentences on the board. After the story has been told and illustrated, go over the main points rapidly, and write down the difficult words as they occur. Print them. The story of the Three Piggy Wigs would yield words and phrases like the following:

the apple trees
the wind blew hard
the little apples fell off
when the pigs awoke
we will go

in the morning
out of the window
on the ground
across the river
Etc., etc.

Point to the first word combination. Have the class look at the words. Pronounce them slowly. Call rapidly on a number of pupils to pronounce them. Pass rapidly around the class. Point to each word of the expression, in succession and then indiscriminately. Call on pupils who do not seem to be paying close attention.

there lived, many years since, while the country was yet
a province of Great Britain, a simple, good natured fellow,
of the name of Rip Van Winkle. He was a descendant
of the Van Winkles who figured so gallantly in the chiv-
⁵alrous days of Peter Stuyvesant, and accompanied him to
the siege of Fort Christina. He inherited, however, but
little of the martial character of his ancestors. I have
observed that he was a simple, good-natured man; he
was, moreover, a kind neighbor and an obedient, hen-
¹⁰pecked husband.

Certain it is that he was a great favorite among all the
goodwives of the village, who took his part in all family
squabbles; and never failed, whenever they talked those
¹⁵matters over in their evening gossipings, to lay all the
blame on Dame Van Winkle. The children of the vil-
lage, too, would shout with joy whenever he approached.
He assisted at their sports, made their playthings, taught
them to fly kites and shoot marbles, and told them long
stories of ghosts, witches, and Indians. Whenever he
²⁰went dodging about the village, he was surrounded by a
troop of them, hanging on his skirts, clambering on his
back, and playing a thousand tricks on him; and not a
dog would bark at him throughout the neighborhood.

The great error in Rip's composition was a strong dis-
²⁵like of all kinds of profitable labor. It could not be from
the want of perseverance; for he would sit on a wet rock,
with a rod as long and heavy as a lance, and fish all day

Return repeatedly to pupils who miss or who do not pronounce correctly. Show the rhythm of phrase combinations by the following device:

through the thick _____
 through the thick woods
through the thick woods

In the story of Abraham Lincoln, (Work and Sorrow), select difficult words like:

Abraham Lincoln
 Spencer County
 plentiful

Kentucky
 Indiana
 seventy

Print the following phrase forms:

in the autumn
 in Indiana
 in the Indiana woods
 to the new
 through the thick woods

to Spencer County
 for his family
 from the old home
 for themselves

Other expressions might be printed on the board:

was eight years old
 their Kentucky home
 land could be bought
 it was a good many days

In the story of the Little Match Girl, the subject-predicate combinations would be emphasised, thus:

It was terribly cold
 It was the last evening
 When she left home
 She certainly had slippers on
 They were very big slippers
 The little maid had lost them
 When two carriages came rattling by
 So now the little girl went on
 No one had bought anything of her all day
 The snowflakes fell on her long, yellow hair

Difficult words would require more attention in Rip van Winkle, thus:

próv ince	de scénd ant
gál lant ly	chív al rous
ac cóm pa nied	Chris tí na
chár ac ter	fá vor ite
cóm po sí tion	próf it a ble
pér se vér ance	Etc.

Direct the pupils somewhat as follows:

Look at this word. Look again. Pronounce it to yourself.
 Pronounce it for the class, Brown. Smith. Jones, etc.
 Look at your books. Look for the first three words.
 Pronounce them to yourselves. Look at the board.
 Pronounce it for the class.
 (Call rapidly on a number of individual pupils).

3. Verbal meaning. Show how the author of a selection brings out the meaning of an idea by different expressions. Call attention to the different expressions which amplify the idea. Question as follows:

How do we know that 'the wind blew hard?'
 What did the wind do? ('Shook the apple trees').
 How do we know the wind shook the apple trees? ('The apples fell off').
 Where were the apples? ('On the ground').

In the lesson on the Three Piggy Wigs, the following expressions show that the wind blew hard:

The wind blew hard.
 It shook the apple trees.
 The apples were shaken from the trees.
 The apples were on the ground.

For the lesson on Abraham Lincoln, question as follows:

Why did Lincoln's parents wish to move to Indiana?
 Why did the way seem long to them?

These questions will bring out the following facts:

It was not a year since Indiana became a State.
 Land could be bought very cheap.
 Lincoln thought he could make a good living.
 Game was plentiful.
 It was not more than seventy or eighty miles away.
 The way seemed far, because,
 The wagon was slow,
 There was no road,
 The movers had to cut a path themselves.

The idea of cold is amplified in the Little Match Girl, by means of the following expressions:

It was terribly cold.
 It snowed.
 The girl was in her bare feet.
 She had lost her slippers.
 Her little naked feet were quite red and blue with the cold.
 Shivering with cold and hunger she crept on.
 The snowflakes fell on her yellow hair.

In Rip van Winkle, the idea of Rip's good nature is shown by the following expressions:

He inherited little of the martial character of his ancestors.
 He was a simple, good-natured man.
 He was a kind neighbor.
 He was an obedient, hen-pecked husband.
 He was a great favorite.
 The children would shout with joy at his approach.
 He assisted at their sports, etc.
 He was surrounded by a troop of them, etc.
 The great error is his composition was a strong dislike of
 all kinds of profitable labor.

In bringing out these different expressions, have pupils read the lesson line by line. If necessary have them stop and compare some of the expressions with the idea, thus:

What made Rip a favorite?
 Why did the good wives take his part?
 Would they do that if he were not good natured?
 How did the children show that he was good natured?
 How did Rip show his good nature when with children?

Bring out the meaning of different words and phrases somewhat as follows:

“Game was plentiful.”

Are there plenty of pencils here? (Show a boxful).

What else is plentiful in this room?

Where are there plenty of apples? Of fish? Etc.

“He was a descendant of the Rip van Winkle’s.”

He was the son of a Rip van Winkle.

Who was his grandfather? His great grandfather?

Whenever it is possible, write or print sentences on the board and indicate several expressions which may be used. Have the pupils substitute as they read, thus:

Whenever he  came near
approached
drew near

He  aided
assisted
helped at their sports, made their  toys
playthings

At times have the pupil look at his book and read several sentences in his own words, thus:

“The great error in Rip’s composition was a strong dislike to all kinds of profitable labor.”

Rip did not like to work hard, or,

Rip disliked to do any kind of work for money, or,

One thing that Rip van Winkle disliked very much, and that was profitable labor.

4. Silent reading and thought getting. In the first three or four school years direct the children constantly. Have the pupils use their books and question as follows:

Where did the little piggy wigs live?

Where was the field?

What was in the field?

What did the little piggies see?

What did they do?

What did the little piggy wig say when he met the gnome?

Now tell the whole story. Look at the board as you tell it.

House
Field
Apples
Gnome
Little piggy wig
Middle piggy wig
Big piggy wig

For the lesson on the Little Match Girl, question somewhat as follows:

How were the streets?
How was the little girl dressed?
Why did she go out?
What did she see?
Now tell this part of the story. Keep these things in mind:
Street
Girl
Dress
Work
The house windows

More formal direction should be given in the fourth, fifth, sixth, and higher years. For a narration, such as Rip van Winkle, write the following outline on the board:

1. The time
2. The background, neighborhood, place
3. The people or characters
4. The action, or what the characters do
 - (a) Beginning of the action
 - (b) Middle of the action
 - (c) Conclusion

Direct and question the pupils as follows:

When did the story take place?
Read the part that tells the time.
Where did the action take place?
Read the description of the place.
Read the words which describe the same thing.
Name the person or people in the story.
What does the author say about them?
What did he first do? (Rip van Winkle).
Where did he go?

Then what happened?
 Where did that happen?
 Whom did he meet?
 What did they do? (The dwarfs).
 What did he do?

For a description direct the pupils by an outline like the following:

1. Is the author standing still, or moving
2. Where is the author placed
 - (a) Outside
 - (b) Inside
 - (c) Over
 - (d) Below
 - (e) Indefinite
3. Plan of the description
 - (a) Whole to parts
 - (b) Part to whole
4. Method of description
 - (a) Qualities set forth
 - (b) Quantities given
 - (c) Comparisons
5. Expressions used for the same idea

Question the pupils to bring out the above:

Where is the author?
 On what is he traveling?
 How does he begin? With the whole scene, or with part of it?
 What part does he take up first?
 How does he show its size?

An exposition would require some such outline as the following:

1. Subject of the lesson
2. The parts of the object
3. Its use. What good is it?
4. How it is made, or,
 What it does
5. Comparisons

An argument would require:

1. The statement
1. Reasons Why?
3. Appeals made
4. Connection of appeals with the reasons

Formal outlines like the above may be used with the higher grades, but should in every case be supplemented by definite questions. Where the outlines would only confuse the children, as in the lower grades, keep them in mind as a guide to the questions asked. Thus, the formal outline of a narration would not be given to second year children, but it would guide such questions as:

- Where were the little piggy wigs?
- What was between the house and the field?
- Who lived under the bridge?
- Why were the three piggies afraid of the gnome?

In the higher grades of the last four years, develop the topic sentence of the paragraph. Have the pupils read over silently one paragraph. Question as follows:

- Try to put the paragraph in one sentence.
- Does it tell about a person? A place? A thing? Action?
- Who is the person? Give only one sentence.
- What happened? Tell it in one sentence, with the time.
- What object is described? Name its parts in one sentence.

The kind of question will depend upon the content of the paragraph. As different sentences are given, write them on the board. Write two or three for a single paragraph. Go over each of the paragraphs, one after the other. For Rip van Winkle would be given some sentences such as the following:

1. Long ago, a good-natured man, called Rip van Winkle, lived in the country.

Rip van Winkle lived in the country in the days of Peter Stuyvesant.

2. He was a favorite with every one in the village.
All the women and children in the village liked Rip.
Rip van Winkle was popular with everybody in the village.
3. Rip never liked to work.
Rip would help every body except his own family.
Rip was a lazy body who did not like to work.

It might be well to point out that the topic sentence is often found at the beginning or end of the paragraph. Write the topic sentences on the board. Call on pupils to amplify these sentences, using their books if necessary. Direct them with questions if necessary. Thus:

How do you know that Rip was good natured?
Give three more sentences to show that he was good natured.
Why was Rip a favorite?
What did he do? What did the women do? What did the children do? Give three or four sentences to show why he was well liked.

After discussion of the topic sentences, call on pupils to amplify a sentence, without help or prompting. Give time in which reference can be made to the book and the topic sentence mentally worked over. Then call on a pupil. Wait without saying a word and let him finish his version of the whole paragraph. Call on several pupils for the same topic sentence.

5. Correlated language work. Look carefully through the lesson and arrange ellipses which are to be filled in by the pupils. The page on the Little Piggy Wigs will give the sentence:

The pigs —————

Write this on the board. Ask the pupils to look through the page and think of what the pigs did. Wait a short while. Then pass rapidly around the class. Let individual pupils finish the sentence. The answers will run somewhat as follows:

The pigs awoke in the morning.
The pigs looked out of the window.
The pigs saw the red apples on the ground.
The pigs said: "We will go across the river."
The pigs wanted to eat the little red apples.

In a similar manner the sentence,

Mr. Lincoln —————

would yield expressions like:

Mr. Lincoln left his Kentucky home.

Mr. Lincoln moved to Indiana.

Mr. Lincoln thought he could make a good living for his family.

Mr. Lincoln had heard that game was plentiful.

Mr. Lincoln bought some cheap land in Indiana.

The sentence,

The little match girl —————

would probably be filled in as follows:

The little match girl was walking through the streets.

The little match girl had left her slippers home.

The little match girl lost her slippers.

The little match girl went on.

The little match girl carried a number of matches.

The little match girl was shivering with cold and hunger.

The little match girl crept along.

In the above sentences the predicate is supplied by the pupils from the lesson. In the following, the attribute is to be filled in:

Rip van Winkle was —————

Call upon pupils for such answers as:

Rip van Winkle was a good-natured fellow.

Rip van Winkle was a descendant of the Rip van Winkles.

Rip van Winkle was a kind neighbor.

Rip van Winkle was an obedient, henpecked husband.

Rip van Winkle was a great favorite with the village housewives.

Rip van Winkle was a playmate of the children.

Look through several pages of the lesson and write the incom-
pleted sentences upon the board. Call upon the pupils to finish the

sentence. If possible let the ellipses be of the same nature, as, missing predicates, missing attributes, missing clauses or phrases, etc., as,

The pigs were afraid, because _____.
 When the little pig _____, he _____.
 The pigs said, "_____",
 He said that _____

(The above sentences are based on the sample pages above, pages 68, 70, 72, 74).

II. APPRECIATION

1. **Narration.** Before taking up a selection in the classroom, let the pupils read it at home for the story and general interest. Then lead them to an appreciation of its story, structure, movement, and style. Take, for example, the story of Rip van Winkle. Let the pupils read it at home. In the classroom, let the pupils silently read indicated portions as follows:

Where is the scene laid?

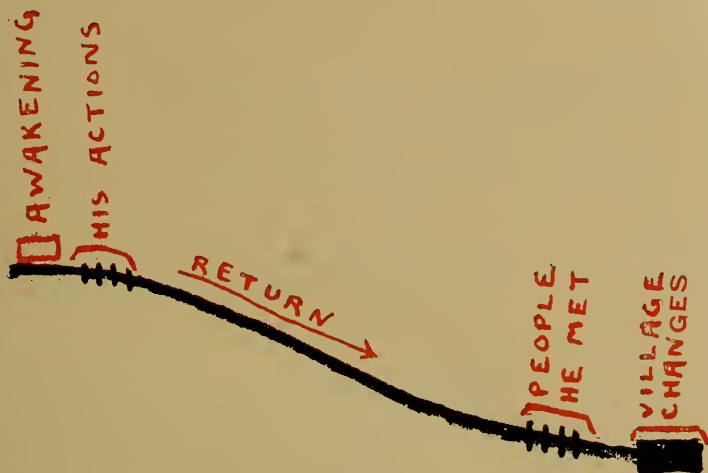
Read one or more sentences to indicate the locality.

Point out the place which ends the first part of Rip's adventure.

Show the general movement of the first half of the story as follows:



Let the pupils tell of the different incidents which lead to the beginning of Rip's long sleep. Have some of the pupils read parts of the story which bring out these incidents. Indicate the second half of the story by means of the following diagram:



Deal with the different incidents as suggested in the following suggestions. Question the pupils as follows:

- What kind of a day was it when Rip awoke?
- How do you know he slept a long time?
- What people did he meet?
- What changes had taken place?

Lead the pupils to appreciate the manner in which Rip's character is set forth. Direct the class as follows:

- Read the paragraph containing the expression, 'a simple, good-natured fellow.' What expressions indicate this good nature?
- Read the paragraph beginning with 'Certain it is.' What expressions show that Rip was a favorite?
- What expressions show that he did not like to work?
- What did he like? Read the sentences which show this liking.
- How did Rip avoid the 'clamor of his wife?'

Deal with the different descriptions and descriptive phrases in the the same manner.

In *The Courtship of Miles Standish*, deal with the poem by cantos, as indicated by the poet. Let the pupils read the poem at home. Then take up the different cantos in the classroom. Lead the pupils to compare Miles Standish with John Alden by means of the following outline:

Miles Standish

John Alden

- What expressions describe the build of each?
- What were the captain's weapons?
- What were Alden's tools?
- What thoughts filled the captain's mind?
- What was John Alden thinking of?

Take up with the class the different expressions used to describe the warlike character of Miles Standish. Direct and question as follows:

- Name the weapons mentioned in the first section.
- How are they described? Their condition?
- What books were in the room?
- Why did the captain think himself ready for the Indians?

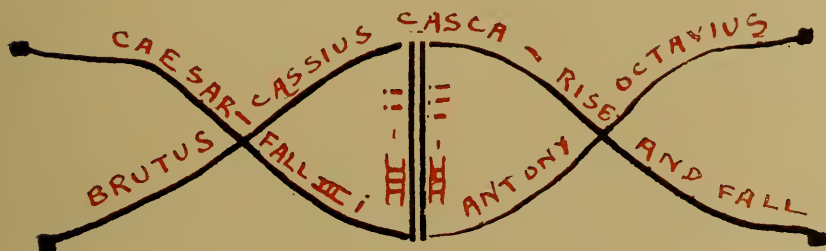
In much the same way deal with the other sections of the poem. Let the pupils point out and read the expressions which set forth the appearance of Priscilla, the thoughts of John Alden, the action and reaction of Alden, of Standish, etc. Illustrate the movement of the story by means of the following diagram:



Question the pupils, thus:

- What was the plan of Miles Standish?
- What were his hopes? What were Alden's hopes?
- How can Alden's errand be considered the parting of the ways?
- How are the positions of Standish and Alden reversed after the refusal, 'Why don't you speak for yourself, John?'
- How can the Indian fight be considered the parting of the ways in the second half of the poem?
- How did Standish act after the refusal? Alden?
- Trace the story to the end.

In the case of Shakespeare's Julius Caesar, trace the movement of the story by means of the following diagram:



Direct the pupils as follows:

- In the first scene, what expressions show a reaction against Caesar?
- What special complaints does Cassius make?
- Who are the other conspirators?
- Why does Brutus hesitate? (II, i).
- What evil omens are seen?
- What is the plan of the conspirators?

Show the pupils how the death of Caesar marks the highest point of the career of the conspirators, and how the result of the speeches marks the beginning of their fall. Let the pupils read parts of Antony's speech which appeal to the emotions. Let them read parts of the speech of Brutus which appeal to the reason. Trace the result. Have the pupils follow the rise of Octavius, and the death of the conspirators.

After a selection has been studied in the manner indicated, let the pupils read about the life of the author, the times in which he lived, the conditions which led to the writing of the selection, and so on. Have them look up the geographical references, the correlated history, etc. If a more intensive study is desired, assign verses, sentences, stanzas, or paragraphs for study, and let the pupils select generic words, specific words, concrete words, abstract words, figures of speech, expressions worthy of imitation, and the like. In each case, however, first go over the selection as suggested, draw a diagram to illustrate the movement of the story, and read portions in the classroom.

2. Description. In a description, place before the class the writer's position and point of view. Have the pupils read parts of the different aspects of the description. Let them read the different expressions which the author uses to bring out an idea, or to present a picture. Take for example, Whittier's *Snowbound*. Direct and question somewhat as follows:

Where is the author?

What two scenes are contrasted?

What takes place outside? Read a few verses to show this. Name the different characters described in the poem.

Read a few verses about each one.

What are some of the expressions used to describe the father?

The mother? The uncle? Aunt? Sister? Schoolmaster?

Let the pupils read some of the more expressive portions of the poem. Follow in general the outline suggested above, page 80. If passages in a selection are worth remembering, let the pupils memorise such passages. As in the case of narration, let the pupils read about the author and look up geographical, historical, or other references.

III. MEMORY WORK

Tell the story of the poem or selection. Make rapid blackboard sketches as you speak. Write the names of the leading characters, scenes, etc., on the board. In outline, write the story on the board. Write a topic sentence for each section, stanza, or scene, etc. Bring

into the story as you tell it or write it some of the more difficult expressions. Proceed just as you would in introducing a reading lesson. Follow the above directions.

When the selection is to be memorised, proceed somewhat as follows:

Read the piece to yourselves. Now read it stanza by stanza.
 Read over the first two or three verses (or sentences).
 Close eyes (or Books over).
 Try to repeat these lines.
 Look at the book once more. Go over the lines.
 Try to repeat the lines without looking at the book (or board).
 Look at the next two lines.
 Now read to yourselves the whole four lines.
 Look at the first words. At the last words.
 Look again. Try to repeat the four lines.
 Who can come to the front of the room and say the four lines?

Give no memory work till, (1) the meaning of the selection has been developed by story, blackboard illustration, and discussion; (2) the selection has been read and appreciated as a whole; and (3) the more difficult words and expressions have been written on the board, explained and illustrated.

IV. DRAMATISATION

Wherever possible, let the pupils dramatise the reading lesson. Assign parts. Direct and question as follows:

Who wants to be the Little Piggy Wig?
 Middling Piggy Wig? Big Piggy Wig? The Gnome?
 Now here is the bridge. There are the apples.
 What does Little Piggy Wig say?
 What does the gnome say? What does he do?
 Show the class. Now, go ahead.

Let the pupils refer to their books for expressions, or make up expressions of their own. Do not hold them to the words of the book. Call upon the class for possible expressions. After one group has

acted out the piece, call upon one or more other groups to act out the lesson. Take the best rendition, give sufficient drill, and let the pupils act at a morning assembly.

In the story of Rip van Winkle, assign pupils to take the parts of Rip, his dog, his wife, the dwarfs, his daughter, and the crowd. Arrange the following situations, (1) Quarrel with his wife, ramble, and sleep; (2) Awakening, return, and recognition. Let the pupils work out as much of the dramatisation as possible. Take the expressions which they submit. Rearrange and refine them if necessary. In arranging a dramatisation, prepare the situations, actions, etc., and then fit the words to them. Do not have too much talk.

CHAPTER V

PHONICS — VISUAL

Give drills in phonics in every class and even in the classes of the high school. Give special drills on sounds which are notoriously mangled, as, *th*, *t*, *r*, *ing*, and *v*. In the following, the visual aids will be considered:

II. THE SOUND *th*.

Illustrate the position of the lips, tongue and teeth by the following sketch:



Direct the pupils as follows:

Put out the tongue. Further. Look at the picture. Look at me.

Keep the tongue out.

Take a deep breath. Hold the breath.

Sound *th*. Keep on sounding *th*.

Write some words on the board, with the *th* emphasized as follows:

th — rush

Have words pronounced on separate sounds, thus:

ush
r. ush
th. r. ush

and have the same words analysed, thus:

thrush
rush
ush
thrush

Use words from the following:

Initial th, hard

thane	thing	thrice	thrush
thank	think	thrift	thrust
thatch	third	thrill	thud
thaw	thirst	thrive	thug
theft	thong	throat	thumb
theme	thorn	throb	thump
thews	thought	throe	thwack
thick	thrall	throne	thwart
thief	thrash	through	theater
thigh	thread	throve	thimble
thill	threat	throw	thistle
thin	three	thrum	thunder

Initial th, soft

than	them	they	thou
that	then	these	though
the	thence	thine	thus
their	there	this	those

Final th, hard

bath	earth	teeth	oath
hath	dearth	wreath	growth
path	froth	depth	youth
lath	moth	breath	tooth
wrath	cloth	breadth	truth
pith	north	death	sooth
with	fourth	length	loth
filth	wroth	strength	quoth
smith	heath	mouth	sloth
faith	neath	south	health
firth	sheath	both	stealth
mirth			

Final th, soft

breathe	bathe	lithe	with
seethe	scathe	blithe	sith
sheathe	swathe	writhe	loathe
wreathe	lathe	soothe	smooth

Middle th

bather	leather	mother	smoothly
father	tether	another	toothsome
gather	weather	smother	wither
lather	either	author	whither
rather	neither	bother	thither
feather	other	worthy	together
heather	brother		

The following incompleted sentences may be used :

After the

After the rain we went _____
 After the show we saw _____
 After the Revolutionary War _____

After this had happened _____
He threw a stone after the _____
They all ran after the _____

Along the

Along the shore we saw _____
He drove his _____ along the road.
She threw the _____ along the road.
They ran for three miles along the _____

At the

At the door stood _____
At the sight of the wounded men we _____
At the window sat _____
At the entrance of the gate we caught _____
At last the _____
He shot at the _____
She threw a stick at the _____
Right at the _____ they stood.

Before the

Before the king stood _____
Before the battle every man _____
Each pupil had to _____ before the class.
No one came before the _____
No one dared to go before the _____

Beneath the

Beneath the cover peeped out a _____
Beneath the cliff we saw _____
He threw his _____ beneath the _____
Beneath the _____ we saw a large _____

Beside the

Beside the three books lay a _____
Besides these presents I received _____
He threw down his _____ beside the _____

Between the

Between the trees we saw _____
Between the dark and the daylight there came _____

By the

By the sea we saw a strange _____
By night the moon _____
By the end of the month we should _____
We crossed by means of the _____
By means of the _____ we succeeded in _____

Down the

Down the lane there came _____
Down the side of the mountain we saw _____
We saw no one go down the _____
There they stood looking down the _____

During the

During the night we heard _____
During the month they caught _____
During the war there were no _____

For the

For the present we shall _____
For the first time we saw _____
They received the _____ for the asking.
For that matter I don't care if _____
He received _____ for the _____

From the

From the forest there came _____
From their seats they saw _____
They plucked many _____ from the _____

In the

In the sky there flew _____
In the palace of the king there once lived _____
There was not a _____ in the room.
In the party was a _____
He was kept in the house until _____
They caught many _____ in the _____
In three minutes we _____
In the distance were seen _____
They found their _____ in the _____

Into the

Will you come into the parlor to _____
They ran quickly into the _____
They threw their _____ into the _____

Near the

Near the door there was _____
For three minutes they waited near the _____
They threw their _____ near the thick thickets.

On the

On the window we saw a _____
On the lawn a little _____ ran and played.
The next number on the program is _____
He threw his _____ on the _____
On this paper write _____
On the coast of _____ can be seen _____
On the night of the _____ of _____ we heard _____
On account of the storm we _____
They saw a spot on the _____
On the whole we have no complaint against the _____

Out of the

Out of the sea they pulled _____
Out of the _____ given to us we made _____
Out of the three dozen eggs _____
He took a _____ out of the _____

Over the

We saw three _____ running over the road.
Over three thousand years ago this continent _____
They threw their _____ over the _____

Past the

They ran past the _____

Through the

Through the thick thicket there came three _____
They threw their _____ through the thick thickets.
Through the open door we saw _____
Through the flames there rushed _____

Through the long night not a _____
 We hurried through the quiet street to _____
 We saw three thirsty thrushes fly through the _____
 Throughout the day no one _____

To the

The _____ fell to the ground.
 At last they came to the _____
 No one said a word to the _____
 Please give _____ to the _____
 They went to the _____

Under the

Under the table there lay _____
 We ran to get under the _____
 They hid under the _____
 They threw their _____ under the _____

With the

We went with the _____
 I left my _____ with the _____
 Take some _____ with the _____
 With these few words I now _____
 With the _____ he caught many _____
 The three hunters came with their _____

Write from six to ten of the sentences on the board. Call on pupils to fill them in. Insist on proper pronunciation of the *th*.

Make note of selections in verse and prose which have in them words with *th*, etc. The following are illustrations:

Our little systems have their day,
 They have their day and cease to be;
 They are but broken lights of thee,
 And thou, O Lord, are more than they.
Tennyson

Then downwards from the steep hill's edge
 They tracked the footmarks small;
 And through the broken hawthorn hedge,
 And by the long stone-wall;
 And then an open field they crossed:
 The marks were still the same;
 They tracked them on, nor ever lost;
 And to the bridge they came.
Wordsworth

Full fathom five thy father lies:
 Of his bones are coral made;
 These are pearls that were his eyes;
 Nothing of him that doth fade
 But doth suffer a sea change
 Into something rich and strange.

Shakespeare

"Your are old," said the youth, "and your jaws are too weak
 For anything tougher than suet;
 Yet you finished the goose, with the bones and the beak—
 Pray, how did you manage to do it?"

"In my youth," said his father, "I took to the law,
 And argued each case with my wife;
 And the muscular strength which it gave to my jaw,
 Has lasted the rest of my life."

Lewis Carroll

When these men had thus bravely showed themselves against Doubting Castle, and had slain Giant Despair, they went forward, and went on till they came to the Delectable Mountains, where Christian and Hopeful refreshed themselves with the varieties of the place. They also acquainted themselves with the shepherds there, who welcomed them as they had done Christian before, unto the Delectable Mountains.

John Bunyan

The Three Thirsty Thrushes

Once upon a time three thirsty thrushes were lost in a thick thicket. For a long time did these three thirsty thrushes wander through the thicket, looking for water. The three thirsty thrushes came to a pool but could not reach the water. "Ah," said one of the thirsty thrushes, "if only we had thin thistles through which we could drink." "But," said a second of the thrushes, "we need thin thimbles in which to carry the water." So the three thirsty thrushes looked through the thick thicket for three thin thistles and three thin thimbles. They soon found three thistles and three thimbles. So the three thirsty thrushes took the three thin thimbles, filled them with water and sucked it up through the thin thistles. Then the three thrushes, no longer thirsty, found their way out of the thick thicket.

II. THE SOUND *t*

Illustrate the position of the tongue and teeth by means of a chart or blackboard drawing like the following:



Direct the pupils as follows:

Press the tongue against the top of the mouth, back of the teeth.

Press harder. Take a deep breath.

Sound 'te.' Again.

Sound 'net.' Repeat the 't' sound, 'net-t.' Again, 'net-t.'

Give drills from the following words:

- (1) bat, cat, fat, hat, mat, pat, rat, sat, tat, vat, brat, chat, flat, spat, sprat, that
- (2) bate, date, fate, gate, hate, late, mate, pate, crate, prate, rate, sate, slate, bait, gait, strait, wait, eight, straight
- (3) bet, get, jet, let, met, net, set, wet, yet, debt, fret, sweat, threat
- (4) beet, feet, meet, fleet, greet, sheet, sleet, street, sweet, eat, feat, bleat, cheat, heat, meat, neat, seat, treat, wheat, mete
- (5) bit, cist, fit, hit, pit, sit, wit, flit, grit, knit, quit, split, twit, writ, whit
- (6) bite, cite, kite, mite, rite, smite, spite, sprite, trite, white, write, blight, bright, dight, fight, flight, light, night, plight, right, sight, slight, tight, fright
- (7) cot, got, hot, jot, lot, not, pot, rot, sot, blot, clot, grot, knot, plot, spot, shot
- (8) cot, dote, lote, mote, note, rote, tote, vote, wrote, quote, boat, coat, float, goat, gloat, groat, moat, throat shoat
- (9) but, cut, gut, hut, jut, nut, rut, glut, shut, slut, smut, strut

- (10) bute, cute, lute, flute, mute, brute, fruit, suit, newt
- (11) aft, craft, daft, draft, draught, graft, haft, raft, shaft, waft
- (12) cleft, left, theft, weft
- (13) drift, gift, lift, rift, shift, shrift, sift, thrift
- (14) oft, croft, soft, loft
- (15) halt, malt, salt, fault, vault
- (16) belt, felt, melt, pelt, smelt, welt, dealt
- (17) gilt, hilt, jilt, milt, guilt, quilt, built, spilt, tilt, stilt
- (18) bolt, colt, dolt, holt, moult
- (19) ant, cant, chant, grant, pant, plant, rant, slant, aunt
- (20) bent, blent, brent, lent, pent, rent, sent, scent, spent, tent, vent, went, meant
- (21) dint, flint, hint, lint, mint, print, tint, quint, squint
- (22) front, blunt, brunt, grunt, hunt, runt, don't, won't
- (23) art, cart, dart, hart, mart, part, smart, start, tart
- (24) dirt, flirt, shirt, skirt, squirt, pert, vert
- (25) fort, mort, port, short, snort, sort, tort, court, wart
- (26) curt, hurt, blurt, spurt
- (27) blast, cast, fast, mast, last, past, vast
- (28) best, blest, chest, crest, jest, lest, nest, pest, rest, test, vest, west, breast, guest, quest
- (29) fist, list, mist, twist, whist, wrist
- (30) cost, frost, lost
- (31) bust, crust, dust, just, lust, must, rust, trust, thrust
- (32) baste, chaste, haste, paste, taste, waste, waist
- (33) beast, east, feast, least, priest
- (34) bought, brought, fought, nought, ought, sought, thought, wrought, aught, caught, fraught, naught, taught
- (35) count, fount, mount
- (36) bout, clout, doubt, drought, gout, grout, out, pout, rout, scout, shout, spout, sprout, stout, trout
- (37) burst, curst, durst, worst, first, thirst

Collect verses similar to the following :

What does little birdie say
In her nest at peep of day?
Let me fly, says little birdie,
Mother, let me fly away.

'Summer is coming, summer is coming,
I know it, I know it, I know it.
Light again, leaf again, life again, love again,'
Yes, my blind little Poet.

Late, late, so late! and dark the night and chill!
Late, late, so late! but we can enter still.
Too late, too late! ye cannot enter now.

No light: so late! and dark and chill the night!
O let us in, that we may find the light!
Too late, too late: ye cannot enter now.

Tennyson

Construct easy rhymes like the following :

Pit-a-pat, comes the cat. sleek and fat.
Tit, tat, tat, runs the rat, from the cat.

Trot, trot, trot,
Through the street, in the hail and the sleet,
Comes the horse with iron feet.

Hot, hot, hot, piping hot,
Is the roast in the pot.

I lent a cent to Tommy Brent
And when I went to get it,
Young Tommy Brent had spent the cent,
And so I couldn't get it.

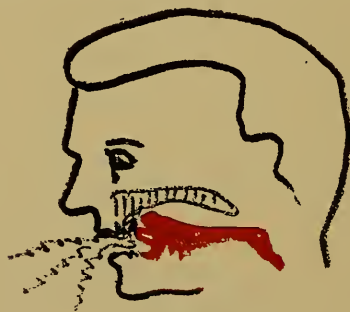
Use incompleted sentences like the following :

It is not easy to _____.
It was his duty to _____.
I want to get _____.
I want to go to _____.
Let me see _____.
Let me wait at the _____.
Let me get that _____ for you.

Let me sit here and look at the _____.
 Go away, and let me write my _____.
 Last night we went to _____.
 Last night I _____.
 Last week we _____.
 It rained so hard last week that we _____.
 Get that _____ for me.
 Please go and get that _____.
 Wait at that house till _____.
 That is not the _____ which I want.
 What is that _____ doing here?
 What are the _____ doing in this room?
 That is not the _____ which I bought.

III. THE SOUND *r*

Show the position of the tongue by the following drawing:



Print the letter *r* on the board as follows, alone, and with *b*.

r — *rr* — *rrr* — *rrrr*
br — *brr* — *brrr* — *brrrr*

Have pupils sound the *r*, and keep on sounding it. Drill them on words from the following series:

Final r

- (1) are, bar, char, car, far, jar, mar, par, scar, spar, star, tar, afar, cellar, cigar, collar, friar, guitar, liar, mortar, nectar, calendar, popular, regular, singular, vinegar, particular, perpendicular

- (2) barber, blister, brother, caper, cipher, cloister, clover, codger, cruiser, dapper, daughter, differ, foster, ginger, hunger, lawyer, leather, ledger, lubber, pepper, pilfer, plunger, robber, rover, scatter, simper, singer, sinner, sister, skipper, smatter, steamer, summer, temper, trapper, trooper, whisper, cylinder, foreigner, mariner, passenger, minister, prisoner, traveler, sir, stir, whirr
- (3) for, abhor, anchor, author, doctor, donor, flavor, horror, honor, labor, mirror, motor, parlor, prior, sailor, sculptor, suitor, tailor, tenor, traitor, tutor, vendor, victor, ancestor, auditor, conqueror, creator, creditor, emperor, governor, orator, senator, warrior, boar, bore, core, door, floor, four, gore, lore, more, pore, pour, roar, score, shore, soar, sore, store, swore, tore, wore, adore, ashore, deplore, explore, implore, restore, heretofore, blur, purr, cur, spur, slur

Middle r

- (1) barb, garb, rhubarb, farce, parse, sparse, arch, larch, march, parch, starch, bard, card, guard, hard, lard, pard, shard, sward, ward, yard, blizzard, bombard, custard, dastard, dotard, drunkard, leopard, niggard, regard, barge, charge, large, marge, discharge, enlarge, surcharge, arc, ark, bark, dark, lark, mark, park, shark, spark, stark, embark, carl, gnarl, marl, snarlarm, bard, charm, farm, harm, alarm, disarm, barn, darn, tarn, yarn, carp, harp sharp carve, starve
- (2) church, lurch, perch, search, smirch, research, bird, heard, sherd, scurf, surf, turf, dirge, merge, purge, scourge, serge, urge, verge, diverge, emerge, firm, term, worm, affirm, confirm, burn, churn, earn, fern, kern, learn, spurn, stern, term, turn, urn, yearn, concern, discern, return, overturn, curse, hearse, nurse, purse, terse, verse, worse, accurse, adverse, averse, converse, commerce, disperse, immerse, perverse, rehearse, reverse, traverse, curve, nerve, serve, swerve, conserve, observe, preserve, reserve, subserve
- (3) dire, fire, hire, ire, mire, sire, spire, squire, tire, wire, acquire, attire, conspire, desire, entire, expire, inspire, require, retire, transpire, dirk, kirk, lurk, murk, perk, smirk, stirk, work, firm, term, worm, affirm, confirm, infirm
- (4) porch, scorch, torch, board, cord, ford, hoard, horde, lord, sword, aboard, accord, afford, record, forge, gorge, cork, fork, pork, stork, form, storm, perform, inform, reform, coarse, course, force, horse

- (5) bird, curb, curd, herb, gird, verb, word, absurd, disturb, suburb, scurf, serf, surf, turf, churl, curl, earl, furl, girl, hurl, pearl, twirl, chirp, usurp, pure, allure, assure, endure, immure, mature, obscure, procure, secure, overture, sinecure

Final ary

boundary	primary	dictionary	secretary
vagary	summary	library	military
beggary	customary	literary	solitary
judiciary	canary	honorary	parliamentary
diary	mercenary	temorary	elementary
auxiliary	ordinary	arbitrary	momentary
pecuniary	imaginary	contrary	voluntary
salary	culinary	dispensary	tributary
burglary	luminary	adversary	January
similarly	visionary	anniversary	February
vocabulary	missionary	necessary	estuary
insularly	stationary		

Final ery

robbery	leathery	trumpery	very
bribery	fiery	slippery	slavery
grocery	mockery	frippery	bravery
embroidery	flickery	coppery	every
housewifery	cookery	misery	thievery
imagery	rookery	nursery	revery
savagery	celery	watery	livery
drudgery	gallery	effrontery	delivery
forgery	emery	artery	recovery
surgery	machinery	mastery	discovery
treachery	joinery	monastery	Bowery
witchery	millinery	mystery	showery
butchery	gunnery	flattery	flowery
fishery	drapery	lottery	

Final ory

gory	commendatory	inflammatory	directory
allegory	mandatory	declaratory	prohibitory
glory	prefatory	preparatory	auditory
pillory	obligatory	oratory	dormitory
memory	interrogatory	laboratory	punitory
armory	purgatory	observatory	territory
compulsory	nugatory	factory	transitory
sensory	conciliatory	olfactory	repository
cursory	expiatory	satisfactory	desultory
accessory	dilatory	unsatisfactory	inventory
promisory	propitiatory	refractory	story
delusory	circulatory	directory	history
illusory	congratulatory	contradictory	savory
Tory	declamatory	victory	ivory
predatory	exclamatory		

Selections with words containing *r* are easy to get. For example, stanzas taken anywhere from Gray's *Elegy Written in a Country Churchyard* are suitable for the purpose:

The curfew tolls the knell of parting day,
 The lowing herd winds slowly o'er the lea,
 The ploughman homeward plods his weary way,
 And leaves the world to darkness and to me.

For them no more the blazing hearth shall burn,
 Or busy housewife ply her evening care;
 No children run to lisp their sire's return,
 Or climb his knee the envied kiss to share.

The opening lines to *Kubla Khan* are good:

In Xanadu did Kubla Khan
 A stately pleasure-dome decree;
 Where Alph, the sacred river, ran
 Through caverns measureless to man
 Down to a sunless sea.

Select similar passages from standard authors and from the reading of the grade. Write the passage on the board and have it carefully read, and, if necessary, pronounced word by word.

IV. THE SOUND *ing*

By means of the following drawing illustrate the formation of the sound :



Have pupils sound *ing*, and continue the sound. Write letters on the board to show this continuance, thus :

i n g g g g g g

Use words from the following lists :

facing	exceeding	foreboding	catching
piercing	bleeding	according	watching
leading	breeding	being	fishing
pleading	abiding	seeing	breathing
reading	riding	stuffing	something
lading	building	stuffings	clothing
trading	scaffolding	edging	nothing
padding	holding	lodging	farthing
wadding	landing	rigging	plaything
bedding	standing	obliging	speaking
bidding	understanding	hanging	taking
forbidding	pending	swinging	tickling
pudding	binding	longing	rocking
preceding	winding	diverging	cooking
proceeding	sounding	converging	stocking

stockings	sapling	lightning	waiting
liking	stripling	awning	biting
striking	darling	yawning	writing
dealing	yearling	housekeeping	slanting
dealings	starling	bookkeeping	relenting
healing	sterling	strapping	fainting
circling	gosling	shipping	bunting
peddling	housing	dripping	footing
seedling	bantling	tripping	excepting
middling	nestling	daring	diverting
worldling	seeming	hearing	everlasting
foundling	trimming	scafaring	coasting
groundling	trimmings	wayfaring	wasting
lordling	becoming	glaring	befitting
feeling	forthcoming	sparing	fitting
feelings	charming	wandering	sitting
unfeeling	alarming	offering	cutting
hireling	assuming	suffering	leaving
trifling	meaning	gathering	leavings
ailing	opening	entering	saving
prevailing	evening	covering	forgiving
wailing	designing	flooring	Thanksgiving
ceiling	lining	mooring	living
tiling	pinning	springing	moving
weakling	winning	earring	carving
tackling	cunning	herring	starving
duckling	reckoning	during	serving
inkling	reasoning	coloring	observing
suckling	seasoning	surprising	drawing
sprinkling	learning	blessing	knowing
twinkling	warning	dressing	flowing
compelling	concerning	fleeting	saying
dwelling	morning	meeting	lying
swelling	mourning	greeting	amazing
willing	turning	fighting	gazing

Use incompleted sentences of the following type:

I am going to go to the _____.

I am not going _____.

We thought of going to the _____.
 We are planning to _____.
 We heard some one singing in the _____.
 While we were in _____ we heard a canary singing.
 Singing a song, the maiden went to the _____.
 Singing some English songs, the travelers _____.
 He was not thinking of anything when _____.
 As he was wringing wet, we _____.
 Flinging his book to the ground, he _____.
 As the ship was sinking, they _____.
 He was not strong enough to _____.
 Sampson was so strong that he _____.
 Stringing his violin with some strong strings, he sang
 and _____.
 During the evening we saw many people going to _____.
 Marching along through a drizzling rain, the soldiers _____.
 Whistling, singing, jumping, running, skylarking, there came a
 band of _____.
 Running through the burning building, he carried a flam-
 ing _____.
 Stopping at an English tavern, we _____.

Write on the board selections like the following:

Toiling, rejoicing, sorrowing,
 Onward through life he goes;
 Each morning sees some task begun,
 Each evening sees it close;
 Something attempted, something done,
 Has earned a night's repose.
 H. W. Longfellow

O what are you waiting for here, young man?
 What are you looking for over the bridge?
 "A little straw hat with the streaming blue ribbons
 Is soon to come dancing over the bridge."
 James Thomson

True worth is in being, not seeming,
 In doing each day that goes by
 Some little good, not in dreaming
 Of great things to do by and by.

A brushing fox in yonder wood,
 Secure to find we seek;
 For why, I carried, sound and good,
 A cartload there last week.

And a hunting we will go,
A hunting we will go,
A hunting we will go,
A hunting we will go.

At length his strength to faintness worn,
Poor Reynard ceases flight;
Then hungry, homeward, we return,
To feast away the night.
Then a drinking we will go,
A drinking we will go,
A drinking we will go,
A drinking we will go.

Old English Song

Presently my soul grew stronger; hesitating then no longer,
“Sir,” said I, “or Madam, truly your forgiveness I implore;
But the fact is I was napping, and so gently you came rapping,
And so faintly you came tapping, tapping at my chamber door,
That I scarce was sure I heard you”—here I opened wide the door;—
Darkness there and nothing more.

Deep into that darkness peering, long I stood there wondering,
fearing,
Doubting, dreaming dreams no mortal ever dared to dream before;
But the silence was unbroken, and the stillness gave no token,
And the only word there spoken was the whispered word, “Lenore!”
This I whispered, and an echo murmured back the word, “Lenore!”
Merely this and nothing more.

E. A. Poe

V. THE SOUND *v*

Illustrate the formation of the sound by the following diagram:



Use words from the following lists:

vacant	vaudeville	verdure	Victoria
vacancy	vault	verge	victorious
vacation	vaunt	verily	victory
vaccinate	veal	vermiform	vie
vacuous	vector	vermilion	view
vacuum	veer	vermin	vigil
vagabond	vegetable	vernal	vigilant
vagary	vegetate	verse	vigilance
vagrant	vehement	version	vigor
vagrancy	vehicle	versus	vigorous
vague	veil	vertebra	viking
vail	vein	vertebrate	vile
vain	vale	vertex	vilify
valentine	velocity	vertical	villa
valet	velum	vertigo	village
valiant	velure	very	villager
valid	velvet	vesper	villain
valley	vend	vessel	villainous
valor	vendor	vested	vindicate
valuable	veneer	vestige	vindication
value	venerable	vestry	vindictive
valve	venerate	vesture	vine
vamp	veneration	veteran	vinegar
van	vengeance	veto	vineyard
vandal	venison	vexation	vintage
vane	venom	viaduct	viol
vanilla	venomous	vial	violate
vanish	venous	viand	violent
vanity	vent	vibrate	violence
vanquish	ventilate	vicar	violet
vantage	ventral	vacarious	violin
vapid	venture	vice	viper
vase	veranda	vichy	virgin
vassal	verbal	vicinity	virile
vast	verbose	vicious	virility
vastly	verdant	victim	virtue
vat	verdict	victor	virtuous

virus	vitreous	vole	vow
visage	vitriol	volume	vowel
vise	vivacious	voluntary	voyage
visible	vocation	volunteer	vary
vision	vociferous	vomit	variable
visionary	vogue	voracious	variety
visit	voice	vortex	various
visiting	void	votary	varnish
visitor	volatile	votary	vulcanite
vista	volcano	vote	vulgar
visual	volition	voter	vulgarity
vital	volley	vouch	vulnerable
vitality	volt	voucher	culture
vitals			

Write incompleted sentences on the board. Have the pupils complete a sentence in their own words and read it when called upon. Use sentences like the following:

- Everybody should visit _____.
- Everybody should be able to _____.
- There are very few _____ in the room.
- There were very many _____ in the village.
- Some very large _____ were seen in the city.
- It is very easy to _____.
- It is not very easy to _____.
- Very few people can _____.
- Please give me _____.
- The leading virtues are _____.
- The village school was a place where very many _____.
- The most common vegetables are _____.
- We made very few visits because _____.
- He took a valuable vase and _____.
- In a velvety voice she said: "_____."
- The victorious soldiers entered the village and _____.
- Viewed from the village, the vessel seemed to _____.
- The violence at the polls kept very many voters from _____.
- The Vikings were a vigorous people who _____.
- Vesuvius is a volcano which _____.

Keep track of selections like the following:

Vanity of vanities, all is vanity; all is vanity and vexation of spirit.

'Fresh green vine-leaves hath the vineyard,—
Grapes I found there ripe and sweet:
With these vines I will not meddle,
Though they tell me—"Come and eat."'

Toll for the Brave!
The Brave that are no more:
All sunk beneath the wave
Fast by their native shore!

Eight hundred of the Brave,
Whose courage well was tried,
Had made the vessel keel
And laid her on her side.
W. Cowper

Promise and keep your vows,
Or vow you never!
Love's doctrine disallows
Troth-breakers ever.
James Shirley

Happy, happy, happy pair!
None but the brave,
None but the brave,
None but the brave deserves the fair
John Dryden

Just for a handful of silver he left us,
Just for a riband to stick in his coat—
Found the one gift of which fortune bereft us,
Lost all the others, she lets us devote;
They, with the gold to give, doled him out silver,
So much was theirs who so little allowed:
How all our copper had gone for his service!
Rag—were they purple, his heart had been proud!

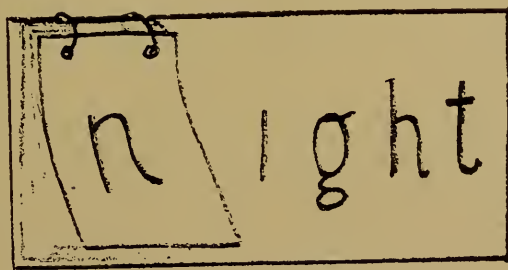
Robert Browning

VI. CORRELATED PHONICS

Use exercises like those above suggested to correct mispronunciation of the *t*, *th*, *r*, *ing* and *v* in common discourse. In addition give exercises which lead directly to the reading lessons proper. In this case base the phonics on the words in the lesson. From the page on the Three Piggy Wigs arrange lists of phonic drills like the following:

l ight	bl ew	sh ook	gr ound
f ———	f —	b ———	b ———
t ———	n —	c ———	f ———
s ———	d —	h ———	h ———
r ———	h —	l ———	m ———
fl ———	m —	n ———	p ———
br ———	p —	r ———	r ———
fr ———	fl —	t ———	s ———

Make charts with the words printed in letters about two inches in height. In addition use six by nine cardboard with movable parts about two or three inches wide. Arrange the device as follows:



Hold up this card device before the class and call upon a number of pupils to pronounce the sounds indicated. Turn over the movable part and repeat.

In arithmetic show by means of cards or blackboard the following combinations:

- 3, 33, 333, 3333, 23, 43, 53, 63, 73, 83, 93, 103, etc.
- 3rds, 4ths, 5ths, 6ths, 7ths, 8ths, 9ths, etc.
- 20, 30, 40, 50, 60, 70, 80, 90, 21, 22, etc.
- 2nd, 22nd, 32nd, 42nd, 52nd, 62d, 72d, etc., etc.

To correct mispronunciation of 'twelve' arrange the following list:

ell, bell, dell, fell, knell, pell, sell, tell, well, twell, twelve

After the pupils can read, arrange the letters in alphabetical order. Give the series of capital letters in a row, and under them the small letters. Ask pupils to try each of the letters with a given sound, as, 'ell,' 'all,' 'and,' etc.

CHAPTER VI

SPELLING AND DICTATION—VISUAL

I. SPELLING

1. Selection of words. Select from fifty to seventy percent. of the spelling words from the reading, literature and memory work of the grade. Take the rest from the words usually misspelled, as, receive, truly, sincerely, forty, ninety, respectfully, accommodate, recommend, etc., from words incorrectly spelled in dictation and composition work, and from the more common expressions used in history, geography, arithmetic, grammar, nature study, science, and drawing. Take from 10 to 30 of such words and dictate them rapidly to the class, without preliminary development or study. Eliminate the words which almost all the pupils spell correctly. Incorporate the rest in your spelling list.

2. Development of meaning. Write upon the blackboard the words to be explained. Give from 2 to 5 to grades in the first four school years, and from 5 to 10 to grades in the last four school years. In developing the meaning of the words, follow the directions in the order given. Use as many as seem necessary to make the meaning of the words clear.

(a) Show the actual object or reproduce the situation, action, quality or relation as closely as possible directly before the children.

(b) Sketch a picture or scene on the board corresponding to the word or phrase.

(c) Use the word in its original content, and write the word in several good, type, sentences.

(d) Substitute synonymous words and write them over the word as it appears in the content or type sentence.

(e) Analyse the word into its parts, as, stem, suffix and prefix. Do this for grades only in the last four school years.

(f) Let the pupils look up the word in the dictionary.

All of these visual appeals may not be needed. Oftentimes all of them are not possible, as, in words like truly, grammar, etc. Try as many of the appeals as possible.

To illustrate the above directions for the lower grades take the following examples:

trotting
laugh
thorn
tired

Read the sentences in the reader in which these words occur. Let the pupils point to these words in their readers. Show by pantomime what the words mean. Let a pupil walk, run, and trot. Direct him as follows:

Not so fast. Lift your feet higher.
That is how to trot.
Who else can go trotting around the room?

Let the pupils laugh. Show them what the opposite is, 'cry.' For 'thorn' show a real thorn, or draw a picture of one. Go through expressions and movements which show that you are tired. Ask the pupils to show a tired feeling. Let them tell what makes them tired.

In the higher grades make more use of content and verbal meaning. Take for illustration the following words:

reference
demonstration
anxiety
disengage

Read the sentence or sentences in the reader in which these words occur, and write the expressions on the board, thus:

17. *reference* (7) *reference to*
 with reference to
 no reference to

18. *demonstration* (7)

19. *anxiety* (8) *feel anxiety for*
 show anxiety for
 anxiety about

20. *disengage* (8) *disengage himself from*

(The first figures, 17, 18, etc., indicate the order of the words in the list. The second figures in parenthesis, (7) and (8) indicate the page in the reader in which the word is found. Type sentences are here not necessary as the pupil has the book before him in which the word is used).

Give a pantomime demonstration, *e. g.*, in science, bodies fall, in arithmetic, $2 \div .50$, 9×2 , etc. Show anxiety about a friend or relative on board a train reported to be wrecked. Wrinkle the forehead, show care, etc. Let one pupil hold another pupil by the arm. Let the one pull away. Give a pantomime yourself to show the meaning of disengage.

Break the words into stem words, prefixes and suffixes. Write other stem words beneath each word as follows:

re fer ence
pre fer ence
con fer ence

de monstra tion
monster



(to be pointed at)

re monstra tion

anxiety

anxious

dis engage

engage

dis miss

dis turb

dis order

Leave the above words on the board. Write the words on the board in a third series as follows:

reference, allusion

There is no reason why you should look at me that way, as I made no reference to you.

demonstration, proof, public exhibition

There was a great demonstration in favor of woman suffrage outside of the Houses of Parliament.

anxiety, care, disturbance of mind

We showed no anxiety about the money, as we knew it was safe at home.

disengage, free oneself

Though he tried to hold me, I gently disengaged myself and walked away from him.

Let pupils look up the words in a dictionary and if possible, get other sentences for the words. Spend less time on such words as: Christmas, governor, arithmetic, etc. Illustrate words like, yawn, island, etc., by a simple pantomime or drawing.

3. Formal study of words. In the lower grades write three or four words on the board, thus:

trot ting
laugh
thorn
tired

Have the pupils visualize the words, as words, and as syllables. Direct them as follows:

How many 't's' in trotting?

Look at the double 't.'

Look again. What is the one 't' followed by?

What is in front of the other 't'?

Look at the whole word.

Close eyes. Who can see the letters?

Go through a similar process with the other words. Point out the 'augh' in 'laugh.' Write the word thus: l AU gh. Have the pupils visualise it in the manner suggested. Emphasise the parts of the other words in the same way.

In the higher grades, write five or ten words on the board, thus:

réf er ence
dem on strá tion
anx í e ty
dis en gage
af féc tion ate ly

Chríst mas
as síst ed
sín gu lar
op po site
gór ern or

Point to each word, syllable by syllable. Direct the class as follows:

Look at each syllable as I point to it.
 Look again.
 Begin at the first syllable and look across to the last.
 Look at the whole word.
 Close eyes. Try to see the word. Try to see the syllables.
 Try to mark out the letters with your fingers.
 Eyes open.

Do not be satisfied to have pupils close and open eyes in a mechanical and perfunctory manner. Pause after each direction. Make sure that the pupils are really trying to visualise the word. Test one or two with their eyes closed. Ask them to mark out in the air with their fingers the letters they 'see.' With the lower classes take one or two words at a time. Finally have the class visualise the whole five, after they have gone over each word in the manner indicated. With the higher classes give as many as ten or fifteen words in groups of five.

4. Word building. In the lower grades let the pupils construct words similar to the one in the exercises. Write the words on the board, thus:

trotting
rot—
blot—
dot—
jot—
mat—
knit—

Have the pupils read the complete word, and spell it out, keeping to the model, 'trotting.' Construct lists when this is possible, thus:

<i>thorn</i>	<i>tired</i>
<i>h</i> —	<i>f</i> —
<i>t</i> —	<i>h</i> —
<i>b</i> —	<i>m</i> —
<i>c</i> —	<i>s</i> —
<i>m</i> —	<i>u</i> —

Let the pupils pronounce the words and then spell them. Call upon a number of pupils for the same word. Pass around the class quickly.

Give similar exercises in the higher grades. In addition let the pupils build words on a given stem. Take the following words, for example:

<i>reference</i>	<i>demonstration</i>	<i>disengage</i>
<i>refer</i>	<i>demonstrated</i>	<i>disengaged</i>
<i>referring</i>	<i>demonstrate</i>	<i>disengaging</i>
<i>referred</i>	<i>demonstrating</i>	
<i>preference</i>	<i>remonstrations</i>	<i>engage</i>
<i>prefer</i>	<i>remonstrated</i>	<i>engaged</i>
<i>preferring</i>	<i>remunstrate</i>	<i>engaging</i>
<i>preferred</i>	<i>remonstrating</i>	
<i>conference</i>	<i>anxious</i>	<i>dismiss</i>
<i>confer</i>	<i>anxiety</i>	<i>dismissed</i>
<i>conferring</i>		<i>dismissing</i>
<i>conferred</i>		
<i>deference</i>		<i>disorder</i>
<i>defer</i>		<i>disordered</i>
<i>deferring</i>		<i>disordering</i>
<i>deferred</i>		<i>disorderly</i>

Write a series of words on the board. Let the pupils construct similar series based on the same stem.

5. The vowels, long and short. From the fourth year up, impress upon the pupils the effect of vowel values on the spelling of simple words. Write a series of words on the board as follows:

<i>bite</i>	<i>bake</i>	<i>bone</i>	<i>cute</i>
<i>k—</i>	<i>c—</i>	<i>c—</i>	<i>j—</i>
<i>m—</i>	<i>f—</i>	<i>h—</i>	<i>l—</i>
<i>s—</i>	<i>l—</i>	<i>l—</i>	<i>m—</i>

Have the pupils pronounce each word, and then spell it. Let them give similar words. Write them on the board, as follows:

race	ice	dance	blade	side
place	mice	lance	lade	glide
case	nice	prance	glade	tide
lace	rice	grievance	fade	ride

Add words yourself from time to time. Have the pupils pronounce them and spell them. Call attention to the long sound of the vowel when 'e' ends the word. Show the same thing with words ending in "ight," as tight, flight, light, etc.

Take a list of words with the long vowel, and show the effect produced when the final 'e' is removed, thus:

bite	bit	cute	cut
kite	kit	jate	jut
mite	mit	lute	lut
site	sit	mute	mut

Pronounce the words. Have the pupils pronounce the words, and spell them. Let them give other words with short vowels, as nut, but, not, sot, tot, lot, hot, etc. Arrange the words in series, thus:

but	cot	bet	bat	bat
hut	dot	get	ban	cat
cut	got	jet	bad	fat
gut	hot	let	back	hat
jut	jot	met	bag	mat
nut	lot	net	bass	pat

Let the pupils pronounce the words and spell them. Let them arrange other series.

6. The endings, ing, and er. Show that the last letter of a word is usually doubled when the vowel is short, in words like:

cutting	cut ting	running	run ning
setting	set ting	sitting	sit ting
rotting	rot ting	batting	bat ting

Have the pupils give as many words as possible. Write them upon the board. Point out the spelling, as follows:

From what word does 'cutting' come?
 Is the sound of 'u' in 'cut' long or short?
 Give the short sound. The long sound.
 Give other words with the short sound of 'u.'
 Spell the words, with 'ing.'

Go through the vowels, *a, e, i, o, u*. Give similar exercises with such words as, bitter, batter, butter, cutter, setter, etc. Write the words on the board as follows:

cutter cut ter cu TT er cut

Have the pupils pronounce the word, spell it, give the stem word, and pronounce the short sound of the vowel.

Take up the long sounds of the vowels, and show that the last letter is not doubled when '*ing*' or '*er*' is added. Write the following words on the board:

racing rac ing spacing spac ing space
gliding glid ing prancing pranc ing glide

Let the pupils give other words. Write them on the board. Proceed in the same manner with words ending in '*er*,' as, racer, spacer, dancer, etc. Let the pupils give as many words as possible. Write the words on the board. Call upon the pupils to pronounce the words, spell them, give the stem word, spell it, and finally, give the long sound of the vowel.

7. Effect of accent on the last letter. Show how the last letter is doubled when '*ing*' is added to such words as.

occurring occur ring
controlling control ling
beginning begin ning
committing commit ting

Question the pupil as follows:

Pronounce the words, '*occur*,' '*control*,' etc.
Where is the accent?
Give other words accented on the last syllable.
Spell them with '*ing*' added.

Write a series of words on the board like the following:

travel jewel
conquer benefit

Have the pupils pronounce the words. Show that the accent is on the first syllable. Ask for similar words. Write them on the board. Then add 'ing,' or 'er,' thus:

traveling	traveler
conquering	conqueror
developing	developer
summoning	summoner

Call the attention of the pupils to the fact that the last letter is not doubled when 'ing' or 'er' is added.

8. The ei and ie when pronounced like ee. Write the word 'receive' on the board, and spend some time on it. Proceed as follows:

Go through the alphabet from *a* to *i*.
Is *c* nearer the *e* or the *i*?
Note how it is written in the word.

Write the word on the board with the *ei* emphasised, thus:

re CEI ve CEI
r e C E I v e
CEI pronounced CE

Question the pupils:

What letter follows the *c*?
Read the two letters which follow the *c*.
How is the word spelled?
Spell 'deceive.'

Let the pupils then know that *c* is always followed by the combination *ei*, in the words 'receive' and 'deceive.' Tell them that other letters are followed by the combination *ie* in such words as, believe, chief, etc. Write the following words on the board, and let the pupils pronounce the words and complete the spelling:

bel - - ve, p - - ee, y - - ld, n - - ce, w - - ld

If any of the pupils hesitate in the spelling, caution them that there is no *c* before the combination. When the pupils are sure of the spelling of the two words, 'receive' and 'believe,' give them the two exceptions, 'seize' and 'field.'

9. The use of capitals. Teach the pupils how to write their names properly. Insist on distinct and emphatic capitals at the beginning of each name. Do not let any of the pupils write their names with initial letters which are a compromise between capitals and small letters. Show the pupils how to write the necessary capitals. Call upon the pupils to give other names, thus:

What is the name of the baker? The grocer?
How is it spelled? How is the first letter written?

Give lessons in dictation on the capital as used in names. Let the pupils see how the 'I' is always written when it stands alone. Write it and print it on the board. Let it remain on the board during a dictation lesson on the use of the 'I.'

Illustrate the use of the capital in the naming of streets, cities, and countries. Call upon some of the pupils to give their residences. Write them on the board, thus:

173 East 62 Street
234 First Avenue
23 St. John's Place

Question the pupils as follows:

What words are written with capital letters?
What other words?
How should we write 'New York City'?

If necessary, write out for each pupil his name and address. Proceed next to the names of other cities, other countries, and other nationalities. Insist on the pupil writing and spelling such proper names with a capital, and saying, 'Capital F-r-e-n-c-h' when he spells the word.

10. The prefixes dis, pre, co, and the suffixes ness, and ly. In the higher grades bring out the distinct value in spelling possessed by the suffixes and prefixes mentioned. Write a number of words on the board as follows:

satisfy similar sent

Ask the pupils to prefix 'dis' before each of the words. Direct them as follows:

Spell 'satisfy.'

Spell 'dis.' Keep the 's' in both.

Spell 'dissatisfy.'

Write the word on the board as follows:

dis satisfy diS Satisfy diSSatisfy

In the same manner take up the words like, misstep, cooperate, disappoint, disappear, preeminent, etc., and suddenness, keenness, legally, lonely, etc. Let the pupils give other words of this kind.

11. Grammatical forms. If any of the spelling words are nouns, let the pupils spell both singular and plural, masculine and feminine, and the possessive. Spend time on such words as potato, negro, cargo, etc. If the words allow, have the pupils give the adjective, adverb, verb, etc. Question them as follows:

What part of speech is the word 'reference?'

Look at your book for the sentence.

What other words are formed from the same stem?

Which may be used as a verb? Spell it.

12 Suffixes and prefixes. After a number of words have been taken up with the class, analyse some of the words which have a common prefix. Take for example the prefix, 're,' as occurring in such words as reference, repair, restore, repeat, etc. Write the words on the board, and underline the 're.' Bring out the point that in each word the meaning carries in it the idea of 'again,' or 'back.' Call upon the pupils to give other words beginning with 're.' Write these words on the board. Have the pupils pronounce and spell them. Take up other prefixes as they occur in the spelling words, as, *dis*, *un*, *ex*, etc. Proceed in much the same manner in the study of suffixes. Do not prepare set lists, but use the spelling words of the grade as the basis of word analysis. Explain the meaning of the suffix, let the pupils construct words with similar suffixes, and then have them pronounce the words given, and spell them.

II. THE AYRES SPELLING LIST ¹

THE 542 WORDS WHICH WITH THEIR REPETITIONS CONSTITUTE SEVEN-EIGHTHS OF THE 23,629 WORDS TABULATED. THE FIGURES SHOW THE NUMBER OF TIMES EACH WORD APPEARED

I	1,080	would	120	sent	53
the	918	sir	113	they	53
and	697	thank	113	what	53
you	635	from	107	when	53
to	627	but	106	who	53
your	585	once	105	know	52
of	511	are	103	may	52
for	415	by	101	oblige	52
in	391	one	99	them	52
dear	380	enclose	82	he	51
a	311	so	82	school	51
will	297	was	79	an	48
my	258	can	76	good	47
with	255	any	73	also	46
as	241	there	73	she	46
we	241	number	69	about	45
very	236	receive	67	mail	44
have	216	Miss	66	more	44
that	207	am	65	other	43
me	203	has	65	wish	43
it	197	work	65	these	42
please	182	respectfully	63	all	41
send	176	letter	61	had	41
this	172	some	61	order	40
truly	166	time	61	us	40
if	154	or	59	year	40
on	150	find	58	day	39
be	148	kindly	58	here	39
is	144	gentlemen	56	could	38
which	143	hope	56	return	38
sincerely	142	our	56	should	38
at	138	been	53	get	37
not	123	do	53	like	37

¹ Leonard P. Ayres, *The Spelling Vocabularies of Personal and Business Letters*, Division of Education, Russell Sage Foundation, 1913.

Dr. Ayres has kindly given me permission to reprint the entire list of the 542 words which constituted seven-eighths of the vocabularies of 2,000 letters, which he tabulated, word by word. Dr. Ayres has published a number of similar pamphlets which are issued by the Russell Sage Foundation, 500 Metropolitan Tower, New York City.

Mr.	37	size	24	attend	19
now	37	three	24	cent	19
under	37	where	24	look	19
let	36	ask	23	month	19
madam	36	book	23	over	19
possible	36	date	23	state	19
two	36	first	23	arrange	18
week	36	glass	23	article	18
come	35	made	23	city	18
go	34	most	23	desire	18
were	34	reply	23	house	18
his	33	then	23	how	18
soon	32	thing	23	January	18
address	31	use	23	only	18
give	31	yesterday	23	people	18
her	31	absence	22	put	18
home	31	appoint	22	separate	18
see	31	did	22	understand	18
after	30	however	22	writing	18
just	30	information	22	away	17
great	29	need	22	before	17
make	29	since	22	experience	17
next	29	stamp	22	hear	17
up	29	take	22	keep	17
want	29	another	21	office	17
much	28	friend	21	shall	17
children	27	him	21	subject	17
out	27	little	21	until	17
soap	27	many	21	association	16
tell	27	Monday	21	Friday	16
think	27	new	21	love	16
trust	27	picture	21	matter	16
during	26	suggest	21	medical	16
feel	26	answer	20	meeting	16
regard	26	call	20	public	16
follow	25	copy	20	room	16
last	25	don't	20	say	16
premium	25	girl	20	such	16
report	25	glad	20	Sunday	16
than	25	kind	20	sure	16
doctor	24	list	20	well	16
interest	24	ring	20	why	16
money	24	show	20	better	15
morning	24	thought	20	cordially	15
no	24	afternoon	19	enough	15
present	24	again	19	expect	15
same	24	allow	19	intend	15

July	15	catalogue	12	convenient	10
mother	15	class	12	December	10
paper	15	daughter	12	department	10
refer	15	due	12	factory	10
their	15	each	12	general	10
through	15	early	12	hour	10
Thursday	15	either	12	June	10
ago	14	forward	12	leave	10
appreciate	14	ill	12	May	10
cover	14	lady	12	member	10
education	14	line	12	mention	10
evening	14	March	12	October	10
name	14	necessary	12	pay	10
plan	14	November	12	receipt	10
question	14	pamphlet	12	something	10
remain	14	request	12	today	10
seem	14	secretary	12	train	10
those	14	shipment	12	used	10
way	14	speak	12	Wednesday	10
while	14	teacher	12	write	10
August	13	whether	12	baby	9
best	13	willing	12	back	9
board	13	written	12	church	9
child	13	course	11	cold	9
check	13	distribute	11	company	9
four	13	earliest	11	contain	9
favor	13	February	11	does	9
help	13	few	11	filled	9
inform	13	fine	11	gold	9
investigate	13	given	11	hand	9
large	13	yes	11	importance	9
long	13	kindness	11	measure	9
o'clock	13	leading	11	must	9
perhaps	13	night	11	never	9
reason	13	off	11	offer	9
September	13	particular	11	old	9
start	13	personal	11	part	9
study	13	Saturday	11	place	9
too	13	secure	11	pleasure	9
Tuesday	13	service	11	position	9
accept	12	sorry	11	post	9
anything	12	without	11	reach	9
April	12	account	10	read	9
attention	12	boy	10	recent	9
because	12	business	10	representative ..	9
beg	12	came	10	small	9
case	12	certain	10	summer	9

table	9	bad	7	towards	7
talk	9	believe	7	trouble	7
though	9	both	7	try	7
took	9	building	7	unfortunate ...	7
unable	9	card	7	visit	7
alone	8	cause	7	volume	7
appear	8	Christmas	7	weather	7
await	8	consider	7	wonder	7
become	8	decide	7	always	6
bed	8	direction	7	among	6
box	8	down	7	begin	6
center	8	ever	7	busy	6
change	8	fully	7	chain	6
claim	8	gave	7	committee	6
cost	8	hat	7	convenience ...	6
country	8	hard	7	develop	6
different	8	heard	7	direct	6
done	8	hold	7	effort	6
else	8	nothing	7	enjoy	6
entitle	8	issue	7	examination ...	6
especially	8	left	7	finally	6
expense	8	lesson	7	form	6
father	8	man	7	half	6
further	8	mean	7	honor	6
inspect	8	meet	7	hope	6
late	8	note	7	hospital	6
material	8	out	7	illustrate	6
move	8	panel	7	impossible	6
Mrs.	8	pair	7	instead	6
nice	8	pass	7	labor	6
obtain	8	pretty	7	land	6
promise	8	probably	7	least	6
prompt	8	quite	7	mark	6
publish	8	rain	7	men	6
salary	8	ready	7	news	6
second	8	remember	7	none	6
several	8	right	7	open	6
street	8	set	7	paid	6
success	8	short	7	person	6
tomorrow	8	signature	7	plain	6
wear	8	slide	7	pleasant	6
woman	8	special	7	practical	6
wrote	8	stand	7	prefer	6
application	7	still	7	president	6
arrive	7	stop	7	print	6
assistance	7	surprise	7	private	6
assure	7	ticket	7	recommend	6

red	6	splendid	6	went	6
refer	6	statement	6	west	6
relative	6	supply	6	white	6
saw	6	terrible	6	whom	6
select	6	upon	6	world	6
silver	6	wait	6	worth	6
song	6	watch	6		

III. DICTATION

1. Selection of material. Use the following material for dictation or transcription:

- (a) Short memory gems and classic prose selections
- (b) Short sentences based on the language word, as, (1) verb forms of *is, do, see, come, go, give, write, sing, bring, think, break, catch, drive, know, throw, lie, lay, run, eat, tear*, etc., (2) plurals, (3) irregular comparisons, etc.
- (c) Short sentences to illustrate punctuation, combined if possible, with (b)
- (d) Common expressions, greetings, daily usage, colloquial and idiomatic expressions, etc.
- (e) Letter forms
- (f) Correlated material from history, geography, nature study, etc.

2. Study of the model. Have the selection written on the board. If available, use a book in the higher grades. Develop the meaning rapidly as suggested in reading. Point to the aspect to be studied, as, the form of the verb, the plural used, the kind of punctuation mark, the capitalization, etc. Write such parts to one side of the selection and in addition underline the same parts in the selection. Use yellow or red chalk for this purpose. Conduct the visualization and study of the model somewhat as follows:

- (a) *Second year.* Two to four lines.

<i>Where the bee sucks, there suck I :</i>	<i>suck I</i>
<i>In a cowslip's bell I lie ;</i>	<i>I lie</i>
<i>Where I couch when owls do cry.</i>	<i>I couch</i>
<i>On the bat's back I do fly.</i>	<i>I do fly</i>

How is the 'I' written in each case?

Read what 'I' do.
 What else do I do?
 How do we write the 'I'?
 Point to yourself as you read, 'I suck. I lie, etc.'
 Who sucks? Who lies? Who couches?
 Look at the letters in suck. In cowslip's.
 Look again. Who can spell these words?
 Now I cover the first line. Who can read it?
 Spell sucks. How is the 'I' written?
 Now I cover the first two lines. Who can read them?
 Spell 'Cowslip's.' 'Bell.' 'Lie.'
 How is the 'I' written?
 Who can write, 'lie' on the board?

(b) *Third year.* Four to six lines.

<i>Thirty days hath September,</i>	<i>September</i>
<i>April, June and November.</i>	<i>April</i>
<i>All the rest have thirty one,</i>	<i>June</i>
<i>Excepting February alone,</i>	<i>November</i>
<i>Which has four and twenty four</i>	<i>February</i>
<i>And every leap year, one day more.</i>	

Name the months given in the piece.
 What kind of a letter is used for the beginning of the word?
 Spell 'September.' What mistake did you make? Yes.
 'Capital S.'
 Spell 'April.' What other months can you name?
 How is 'March' spelled?
 Why is it begun with a capital letter?
 Read over the whole six lines.
 Read over the first two lines.
 Look at each syllable in Sep - tem - ber.
 Look at each syllable in No - vem - ber.
 As I cover the first two lines, try to remember them.
 Who can repeat the first two lines?
 Who can write 'September' on the board?
 On your trial sheets write 'September, November, and April.'
 Look at the board. Copy the same words.
 Who has spelled all three correctly?
 Look at Feb - ru - a - ry. Look at 'ru.'
 Spell it. Copy it on your trial slip.

(c) *Fourth year.* Four to eight lines.

Then I walked up to Mary and said, "Who has seen John? Have you seen him?"

Mary said in answer, "John was not seen by any one to-day."

"Who saw him last?" I asked.

Mary answered, "I saw him last night."

<i>has seen</i>	<i>Mary said, "John was seen."</i>
<i>have seen</i>	<i>"Mary," said John, "was seen."</i>
<i>was seen</i>	<i>Mary said, "I saw him."</i>
<i>saw</i>	<i>"Mary," said I, "saw him."</i>

Look at the words which are used with 'seen.'

Read out the words used with 'seen.'

What did Mary say?

Give the exact words which Mary said.

Why are the quotation marks used around these words?

How many quotation marks are used?

Where is each mark placed?

What does the mark at the beginning mean?

What does the mark at the end mean?

Read the sentence with the marks placed around 'Mary' and 'was seen.' Why stop after 'Mary'?

Where does the quotation begin with the marks changed?

Look for marks other than quotation marks.

How many other marks are used? Name them.

(d) *Fifth year.* Five to ten lines.

*230 East 88 Street,
New York, June 15, 1912.*

*Mr. James E. Brown,
500 Park Avenue,
New York City.
Dear Sir,*

*In answer to your request of
June 12, permit me to state that the two
dozen books you ask for will reach you
within a few days.*

*I thank you for the order, and am,
Very truly yours,
Robert North.*

Write the letter on the board. Pay special attention to form, punctuation, and margins. Direct and question as follows:

Where are the commas in the first line? In the second?

Punctuate this heading: *215 East 98 Street*

Boston April 19 1911

Write your own address on the board, Smith. Jones do so.

Who can punctuate properly? Moore, try it.
 Write your own addresses on the trial sheet.
 Where will you put the first comma?
 Where do the commas go in the second line?
 Hold up your papers. No, you left out the comma after
 New York.

Yes, that is very fine.

Papers down. Where are the commas in the next four
 lines?

Punctuate this, *Mr Robert F W Smith*
184 East 78 Street
New York City
Dear Sir

Call upon several pupils to answer. Call upon a pupil to go to the
 board and put in the marks while the class looks on.

Now we shall see how to arrange each line.
 Under what letter is the 5 of 500?
 Under what figure is the *N* of *New York*?
 Under what letter is the *D* in *Dear Sir*?
 Use your trial sheets. Rule a light line.
 Begin each line right up against the line you ruled.
 Hold up your papers. Down.

If the slanting form is used,

Mr. James E. Brown,
500 Park Avenue,
New York City.

proceed in a similar manner. Indicate under what letter the line
 is to begin. Have a slanting line ruled on the trial sheets. Inspect
 papers to see that the proper form has been copied. From three to
 eight pupils usually insist on doing it wrongly. Have them do it
 over.

Read the letter. Why is it written?
 Who do you think is Mr. Brown?
 How else could you end the letter?
 Where do you begin to write, 'Very truly yours?'
 Where do you sign your own name?
 Write some other closing on the board, Emma.
 Josie, try it.
 Who can punctuate this, *Respectfully yours*
Frank R Thomas

Hold up your papers.

Look at the board. Are your commas in the same place?

Look again, Frank. Yes, that is right now.

(c) *Sixth year.* Eight to fifteen lines.

We, the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

Why do we 'ordain and establish this Constitution?'

Why is not the expression, 'in order to' repeated with each reason?

Read some of the phrases which go with 'in order to.'

What is the last phrase to go with 'in order to?'

What word tells you that this is the last phrase?

What mark separates each of the expressions?

Read over the selection.

Read it again. Read each of the 'in order to' phrases.

Look at them again.

What does the first one mean? The second one? Etc.

What is 'domestic tranquillity?' 'Posterity?'

Read over the whole selection.

Who can repeat it?

IV. USE OF THE DICTIONARY

1. Correction of spelling. 4A through 8B. Introduce the pupils to the dictionary by having them look up the spelling of words. Direct the pupils as follows:

What is the first letter of the word?

What part of the page will guide you?

Who has the page with *t* at the top?

What letter follows *t* in the word?

Let the pupils use the dictionary while writing spelling words or dictation. Let the pupils go over the lists, or the dictation, and rewrite any words misspelled. Do not count such words wrong. Give the pupils the benefit of their work in using the dictionary to correct their work.

2. Accent of syllabication. 4A through 8B. Write a list of words on the board and let the pupils look up the pronunciation. Take words such as:

recess	address
annex	detail

Direct the class as follows:

Look up the word 'recess.'
 Read the first syllable. The second syllable.
 Spell the first syllable.
 Which syllable is accented?
 How is the accent shown?

Select words which the pupils mispronounce. Take words from the reading of the grade. Deal with the spelling words in the same manner. Have the pupils carefully pronounce each syllable, then the word, and finally have them spell the word, syllable by syllable. Explain the meaning of the following signs: \cup , —, \sim , \angle

3. Word building. 4A through 8B. Take the words selected for the lesson and write them on the board. Ask the pupils to look up the word, and find what other words are built upon the same stem, thus:

thorn	trot
thorny	trotted
thornier	trotting
thorniest	trotter

4. Meaning and use. 5A through 8B. Assign a portion of the lesson in reading or memory work. Underline the words on the board. Let the pupils look up the meaning of the words, and read the passage in the new words found in the dictionary. thus:

He inherited, however, but little of the martial character of his ancestors.

inherited = received, was endowed with
 martial = warlike, manly
 character = bearing, nature, nature disposition
 ancestor = forefather

In the same manner let the pupils find substitute expressions for words in their spelling lists.

5. Parts of speech. *7A through 8B.* If pupils are in doubt concerning the usage of words, or concerning the class to which the words belong, have them consult the dictionary. Let them look up the following words:

yes
no
like
seen
done
there

Direct them as follows:

Use the word in a sentence.

What part of the sentence is it?

What part of speech is the word? Look it up.

What part of speech is 'yes?' 'There?'

6. Synonyms, antonyms, and prepositions. *6A through 8B.* After the meaning of words has been developed, deal with similar meanings, opposites, and the preposition usually employed with the word in question. Write the words on the board:

spasmodic
anguish
anxiety
recommend

After the meaning of the word has been developed, ask the class to look up the word in the dictionary and get expressions which mean about the same thing. Then call upon pupils to give the opposites. If there is any special preposition which usually goes with the word, have such prepositions looked up, as, 'to recommend for a position,' 'to show anxiety for a person's return, anxiety about or regarding an event.' etc.

7. Derivation and history of words. *7A through 8B.* If a word has a history, let the class look it up. Have the pupils find the stem of a word and then look up other words with the same stem.

CHAPTER VII

COMPOSITION — VISUAL

I. SELECTION OF MATERIAL

Use the composition period solely for the purpose of developing expression. Do not attempt, in addition, to load the pupils with the facts which they are to use. Base the composition only on subject matter with which the pupils are familiar. In history, nature study, etc., the material should be that which has been taught in previous lessons. The period in composition should then make use of this material, should, in fact, be a form of review. Bring the composition within the circle of the children's personal life and interests. Make use of their general information, their school studies, their daily experiences, occupations, etc. Deal with the immediate environment of the pupils, as, the school, the home, and the immediate neighborhood. For example, '*My Back Yard*' has more of an appeal to a child than, '*The Sahara Desert*,' and '*My Escape from the Policeman*' more interest than '*Washington's Retreat from Long Island*.' Dramatic impersonation will produce better results than more formal narration. Thus, if Washington's Retreat has been studied in the classroom, the composition might be on, '*How We Escaped from Long Island*.' Do not spend any of the composition period in painfully filling the pupils with facts which are immediately to be vomited forth. Keep to what the pupils already know, either because of their general experience in the home, street and school, or because of what they have learned in school during preceding lessons in the subjects concerned. The following are suggestive titles:

1. Dramatic impersonations

(a) *Fairy tales, fables, myths*

How I Killed the Giant
How We Found the Golden Fleece
My Ride on Pegasus
What I Did with My Lamp
My Escape from Bluebeard

(b) Nature study

My Day's Work (Horse)
 My Night Watch (Dog)
 My Home (Coop, Stable)
 A Scare (Rabbit)
 How I Live (Mole, Fox, Cat, Dog)
 My Enemies (Bird, Squirrel, Rabbit)
 Farm Life (Pig, Hen, Cow)
 My Life Underground (Seed, Root)
 In the Air (Leaf, Branch, Twig, Flower)
 When the Sun Begins to Shine (Any Plant)
 My Travels to the Market (Apple, Pear, Peach, etc.)
 How I Became a Piece of Cloth (Cotton, Wool, Silk)
 Story of a Raindrop
 My Travels (River, Fish, Etc.)
 How I Became a Grain of Sand

(c) History, biography, etc.

My Talk with Columbus
 My Travels with De Soto (Any Explorer)
 How I Saved Washington's Life
 My Visit to President ——— (King ———)
 The Flag I Made (Betsy Ross)
 How I Invented the Cotton Gin (Eli Whitney)
 My First Phonograph (Edison)
 My First Sight of Land (Any Explorer)
 Our First Indian Attack (Any Colony)
 How We Raise Cotton (Wheat, Corn, Wool, etc.)
 In the Ice Fields (Nansen, Peary)
 How I Discovered the North Pole (Peary)
 How I Rescued Livingston (Stanley)
 How My Vote Passed the Bill
 Why I Vetoes the Bill

2. Invention and imagination*(a) The unfinished story (Dramatic)*

When I went to school this morning, ———.
 Last night I found ———.
 I once met ———.
 If I were the teacher, ———.
 Suddenly I heard a sound. I ———.
 A man said to me, "———."
 While I was sleeping, I heard the window slowly open.
 A white figure passed before me. I ———.

I ran fast. Then a whistle blew.
We tried another path. It grew darker.

(b) *The unfinished story (Impersonal)*

Two goats met on a bridge.
The lion and the man met in the arena.
A solitary horseman was riding through the dark forest.
The policeman saw a man with a large bundle.
He stood there, his sword in his hand. They ———.
Taking careful aim, he fired.
All night long he sat, carefully working at it.
The captain was awakened by a splash of cold water
across his face.
He tumbled into a large cave.
She waited and waited. Then she saw ———.

(c) *Picture study*

3. Narration

(a) *Stories, fables, etc.*

The Fox and the Grapes
The Cow and the Clover Field
The Mouse and the Cheese
The Girl and the Diamond Ring
The Beggar and the Doughnuts
The Boy and the Candy
(N. B. The first can be used as a model. Any of the
others can be imitations.)
Hunting a Bear
Hunting a Wolf (Lynx, Lion, Fox, etc.)
An Accident 'Round the Corner
An Accident in the Park (In the Country, In the East
River, etc.)
(Keep to the stories of the grade. Use this story as a
model, and select an imitation of the story).

(b) *Change of poetry to prose*

Poe's Raven, Eldorado
Tennyson's Beggar Maid
Longfellow's Skeleton in Armor, Wreck of the
Hesperus
Whittier's Barbara Frietchie
Bret Harte's John Burns of Gettysburg
(Select poems which the class has studied or read.
Keep to the reading and literature of the grade).

(c) *Travels*

Travels of a Penny (Dramatic, 'I,' or impersonal, 'It')

Travels of a Stamp (Hat, Coat, Shoe, Pencil, etc.)

Voyage of a Cork (Boat, Board, Bottle, etc.)

Adventures of a Piece of Coal (Lead, Gold, Iron, etc.)

The Short Tale of a Match (Glass, Fork, Plate, etc.)

From the Fields to the City (Corn, Wheat, Cow, Pig, etc.)

(d) *Correlated history, biography, etc.*

Voyage of Columbus (Cabot, Verrazzani, Balboa, etc.)

Settlement of _____

The Discovery of _____

The Invention of _____

The Inauguration of _____

Death of _____

Life of _____

Boyhood of _____

Administration of _____

Slavery

The First Telegraph

(e) *Current events*

(Post on a bulletin board, pictures and accounts from the monthlies and weeklies).

4. Description

(a) *School life*

My Classmate

My Teacher

Our Classroom

Our Books

The Blackboard

Our School Garden

A Rapid Drill

The Last Day of School

The First Day of School

The Reception We Had

Our Field Day

(b) Neighborhood life

The Grocery Store
The _____ Store
The Butcher
The Baker (Shoemaker, Grocer, etc.)
The Policeman
The Fireman (Street Cleaner, Conductor, Letter Carrier, etc.)
The Organ Grinder
The Pushcart Man
The Cash Girl (Errand Boy, Saleslady, Cook, etc.)
April Fool's Day
Fourth of July
Thanksgiving Day in Our Block (Square or Street)
A Fire (An Arrest, An Ambulance Call, etc.)

(c) Nature study, etc.

The Trailing Arbutus
The Dandelion (Sunflower, Sweetbrier, Violet, Lilac, Wheat Plant, Ivy, Seaweed, etc.)
The Apple Tree (Peach, Chestnut, Elm, Willow, Pine, etc.)
The Bobolink (Robin, Catbird, Thrush, etc.)
The Hen (Duck, Turkey, Quail, Partridge, etc.)
My First Dog (Cat, Pigeon, etc.)
A Horse Trade
Our Neighbor's Goat
Pond Life (The Aquarium)
A Visit to the Zoo
Farmyard Life (A Barn Yard)
The Brook
A River Ford
Breaking of the Dam at _____
Life on a Canal Boat
New York Harbor
When It Rains
Our Street in Winter
A Thunder Storm ((Snow Storm, A Summer Night)
Signs of Spring in the City

(d) Buildings, etc.

Our School (House, Church, etc.)
The Theatre (Moving Pictures)
Our Visit to the City Hall
The Museum

A Mill (Saw Mill, Flour Mill, etc.)
 A Robin's Nest (Kingfisher's, etc.)
 A Spider's Web (Beehive, Beaver Dam)
 Grant's Tomb (The Obelisk, Monument, etc.)

(e) *Persons, pictures, etc.*

Washington Taking the Oath of Office
 A Minute Man
 One of the Marines
 A Volunteer Going to the Front
 Behind a Big Gun
 Paul Revere
 Enlisting in the Army
 The Bread Line
 Please Help a Poor Blind Man
 Just a Tramp

(f) *Games, etc.*

A Ball Game
 Two Strikes and Two Out
 How Rob Won the Game
 Tag (Hide and Seek)
 How I was 'It'
 Marbles
 How I Won Forty Marbles
 Winning the Relay (High Jump, Dash, etc.)

(g) *Daily occupations and industries*

A Coal Mine
 A Brewery
 A Department Store
 Selling Meat (Fish, Groceries, Cloth. etc.)
 A Laundry
 A Sweat Shop
 An Indian Village

5. Exposition

How I Do My Homework
 Why I Do (Not) Like ——— (Arithmetic Reading, etc.)
 How to Make ——— (Butter, Cheese, Coffee, Rice
 Pudding, Tea, Bread, A Roast, etc.)
 How to Make ——— (A Kite, A Relief Map, a Book,
 Cloth, Silk, etc.)

How to Grow ——— (Beans, Celery, Tomatoes, Cabbage,
Salad, Potatoes, Strawberries, etc.)
The Stove, Trolley Car, Pump, Dumbwaiter, etc.
(Explain how it works).

6. Letters

(a) *Business*

Complaints, excuses, etc.
Soliciting advertisements
Asking for price lists, catalogues, etc.
Ordering goods, sending specifications, etc.
Asking for a position, refusing a position, resigning,
etc.
Returning or exchanging goods
Receipt with words of thanks

(b) *Social*

To father, mother, brother, sister, friend
Account of day's work, pastime, promotion, teacher.
school work, classmate, etc.
Invitation to party, dinner, visit, etc.
Letter of regret, thanks, etc.
(One-half class write to the other half.
One class write to another class, answer, etc.)

II. DRAMATIC IMPERSONATION

1. **Third and fourth years.** (a) *Presentation and arrangement.*

Group the one or two paragraphs to be written around one or two incidents which can be represented on the blackboard and then acted out by the children. For example, in the case of the topic, 'The Scare,' proceed as follows:

Do you remember the story of the rabbit and how he was almost caught by the fox ?

Well, this is where I live. (Make sketch).

This is the grass, this is the log, and over there is the little brook.

Here am I, sitting on the log. (Draw rabbit).

Who wants to be the rabbit? Come up, John. Hop.
 Who is the fox? Yes, you may be the fox.
 Here is the forest, here the brook, and here is your log.
 Now show the class what you are eating.
 Run around and look for a place to hide.
 Look there, what do you see?

Now, brother fox, get behind that desk. Just show your nose.

That will do. Who else wants to be a rabbit? A fox?
 Where are you, brother fox? Come out and smell around.
 Come up closer. Bunny, where do you hide?
 Under the log? Now where do you run?
 What do you do at the brook? Show us how you jump across.
 Why does the fox lose the smell?

Now you are all rabbits. Who can tell where he lives?
 Tell how you play. What you eat.
 Where do you sit and look around?
 What kind of a place is it?
 Who else can tell the story?

What do you see when you look around?
 What is the fox like?
 What does he do? What do you do?
 How do you get away?
 What does the fox do?

As the children tell the story, write down several introductions, thus:

I am a little bunny rabbit.
 My home is in the woods.
 Let me tell you of a scare I once had.
 Once when I was little I did not do what my mother told me.

In addition write the descriptive words which admit of different forms of expression. These will be something like the following:

1. little, small, wee-wee
 run around, play in, jump about in, scamper through
 a big, mossy log, a log green with moss, a log worm-eaten and old
 see, behold, saw, beheld, spied, observed
 nose, snout, nostrils, head

2. afraid, trembled, scared, heart went pit-a-pat, shook with fear
scampered, ran, jumped quickly, hurried, hastened
sniffed, smelled, put his nose to the ground
stopped at the log, halted, waited, hesitated, stood still
jumped, leaped, sprang, etc., etc.

Write these expressions on the board as they arise in the dramatisation and in the story as told by the children. Spend some minutes on getting from the children different expressions for the same thing. Add some of your own. Group them according to the sequence in the story. Aid the children by a series of suggestive topics, thus:

1. My home
The forest
The fields
My hiding place
What my mother told me to do
What I did
2. What I saw
What the fox did
Why I was frightened
How I got away

(b) *Use of the model.* Introduce a model narrative after the story has been told, after the dramatisation has been worked out, after the oral work of the children has been finished, and before the children are ready to write. Either read the model or write it on the board. The following is based on Ernest Thompson Seton's 'Raggylug' in his *Wild Animals I Have Known*:

Old Olifant's swamp is a rough, brambly tract of woods, with a pond on one side and a stream through the middle. A few of the ragged remnants of the old forest still stand in it. The older tree trunks lie about as dead logs in the brushwood. All around are smooth fields. The only tracks in the fields were those of my enemy, the fox. My mother told me always to lie still and say nothing in case of danger. My hiding place was under one of the big logs near my home. Here I would sit and wait for my mother to come home to me. One day I heard a low, snif-

ing sound. I lifted my head above the log and peeped into the woods. I shook with mortal fear as I saw my old enemy, the fox.

Near one of the trees he was sniffing around. The scent seemed very poor for he kept round and round till he stopped near the log. It was a trying moment, but the wind blew right. It was blowing away from me. The fox halted for a moment. Then he came stealthily sneaking up towards me, his nose still on the ground. I fell off the log and rolled under. Still nearer came the fox. I darted out and ran for the brook. The fox sprang for me. He missed, but followed like a racer. I reached the stream first. With a wild scream I jumped across. On the other side I knew I was safe, but I kept on running till I was out of the field.

Do not attempt any formal study of the model in the above. Use the model simply as a general guide to show the children how to go about writing the story. So that there may be some correspondence between the model and the composition to be written, keep the model in mind as you introduce the subject of the composition. Let the model be your logical plan as you arrange the dramatisation and illustrate the story. Have the model ready for presentation after the oral work and immediately before the written.

2. Fifth through eighth years. (*a*) *Presentation and arrangement.* In the higher grades make use of the topical outline and hold the pupils to from three to five paragraphs. After the class is familiar with the history of New England, give a composition based upon the work in history, as, 'How We Settled Plymouth.' Proceed somewhat as follows:

Now we are all Puritans.

Tell me why you do not want to live in England, John.

Where can we go? Why?

Why did we not stay in Leyden?

Where else can we go?

How can we get there?

What is the topic of this story?

Give some other topics.

Call on several pupils for topics for the first paragraph. Write them down as they are given, as follows:

Life in England
Religious troubles
Troubles at home
Flight to Holland
Life in Holland
Dissatisfaction in Holland.
Plans

Change the wording of the topics as given by the pupils whenever necessary. Arrange the topics in a sequence somewhat as follows:

I. From England to Holland

1. How we lived in England
2. Why we left England
3. Our life in Holland
4. Why we left Holland
5. Our plans

For the second and third paragraphs proceed in a similar manner. Question the pupils and write down the topics which they give. Then arrange these topics in a sequence similar to the following:

II. The voyage

1. Our trip to Southampton
2. Leak in the Speedwell
3. Our voyage across the Atlantic. Bad weather
4. How we passed the time
5. In sight of land

III. Landing at Plymouth

1. We draw up a compact and elect a governor
2. Sufferings from the cold
3. We land and give thanks. Log cabin
4. How we passed the first winter

In the course of the oral work, write down the more difficult words and expressions which arise, thus:

congregation, meeting, assemblage
persecution
refugees
nationality
enterprise

Write down introductory sentences or phrases which are given by the pupils, thus:

Yes, things were very different in the old days in England.
 Long ago, I remember it well, we were greatly persecuted.
 We were not always free to worship as we do now.
 Many years ago.

(b) *Use of the model.* Let the pupils have histories before them. Use the account given in any good school history as a model. Use the model to guide the pupils in the sequence of the narrative, to give them facts on which to write, and to afford them words and expressions to be used in their personal narrative. Have the pupils vary the expressions in the book. Write such variations on the blackboard.

III. INVENTION AND IMAGINATION

1. **The unfinished story.** Write the incompleted introduction on the board. Pause a few moments. Look at different pupils of the class. Then call upon pupils for further details. Have them either vary the details implied in the general description, or tell possible results of the situation presented. Let them give just enough to start the story. Under the incompleted introduction write the possible continuations given, thus:

(a) "*Last night I found ———.*"

a pocketbook. It had three dollars and twenty-five cents in it. I ran home to my mother with it. She was crying when I came in.

a pocketbook. It was full of money. Just as I was going home with it a man stopped me and said, "*———,*"

a pocketbook. Right ahead of me was the lady who dropped it. I ———.

(b) "*Suddenly I heard a sound.*"

Kinds of sound heard:

1. bell ringing
2. man's voice
3. footstep
4. growl of an animal

5. click of revolver
6. tapping at the door

What I was doing at the time:

1. lying asleep in my room
2. walking in the street
3. hiding behind a tree
4. sitting on a log
5. waiting behind a door
6. reading a book

What I then did:

1. I awoke with a start. I knew that I had to meet Mr. Smith at the office at 10 o'clock sharp.
2. I turned around. I saw behind me ———.
3. It sounded like that of the spy who had been following me all day.
4. Was it a lion or a tiger? I grasped my gun ———.
5. I knew that the struggle was at hand. Springing forward ———.
6. I walked to the door and opened it. I jumped back with surprise. It was ———.

(c) *"The captain was suddenly awakened by a splash of cold water across his face."*

The splash was followed by a cold stream which flooded his room.

He woke to hear a grinding noise mixed with women's screams.

He jumped up. Beside him he saw a small stream of water trickling through a leak in the ship.

The ship was tossing about. The wind was howling.

(d) *"He stood there, his sword in hand. They ———."*

They rush at him.

They paused a moment. Then one man came forward.

They faced him with loaded rifles.

They drew their swords as they approached the narrow pass.

Each of the sentences given in the above is a cue for the development of the story. In the third and fourth school years, let the pupils tell their story in one or two paragraphs. In the higher grades ask for three or four paragraphs. To obtain varied results do not attempt to introduce a model. If a model is introduced

restrict the pupils to one variation of the story. The following model is based on 'The Siege of the Round House' in Stevenson's *Kidnapped*:

The Fight

He stood there, his sword in hand. They waited for the captain to come. The captain soon showed his face in the open door.

"Stand!" cried Alan, and pointed his sword at him.

The captain stood, indeed; but he neither winced nor drew back a foot.

"A naked sword?" said he. "This is a strange greeting."

"Do you see my sword?" said Alan. "It has slashed off more heads than you have toes on your feet. Call up your men to your back, sir, and fall on! The sooner the clash begins, the sooner you'll taste the steel through your vitals."

The sea had gone down, and the wind was steady and kept the sails quiet; so that there was a great stillness in the ship, broken only by muttering voices. A little while after, there came a clash of steel upon the deck. They had been dealing out cutlasses and one had been let fall. After that was silence again.

It came all of a sudden when it did, with a rush of feet, and a roar, and a shout from Alan, and a sound of blows and some one crying out as if hurt. Alan stood as before. But now his sword was running blood to the hilt. Right before him on the floor was the captain, on his hands and knees. Blood was pouring from his mouth. He was sinking slowly lower, with a terrible, white face.

Do not attempt any formal study or imitation of the model. Let the pupils read it from the board or from the reader to get the general swing of the story. Let the pupils read the model to themselves and make notes if necessary. Have the model covered or removed while they are writing. Introduce the model soon after the oral work has been started.

2. Picture. Choose a picture which shows life and action. The characters, men, women, children, should be doing something definite. Choose a masterpiece or a good illustration of some interesting current event. Let the picture be large enough for each pupil to see. If possible, let each pupil have an individual copy of the picture.

(a) *Dramatic impersonation.* Lead the pupils to grasp the meaning of the picture by assigning them some part in it. Let each pupil be the man with the hoe, or the dog swimming, or the horse pulling the cart, or the fish on the hook, etc. Direct and question somewhat as follows:

See, this is you. Where are you?
What is on this side of you?
What is on the other side of you?
What are you now thinking of?
How did you get here?
What are you doing?
What do you intend to do?
How do you feel?
Where would you like to be?

For the lower grades, write a series of cues on the board, thus:

1. Where I now am
How I got here
What I am doing
2. How I feel
What I should like to do
What I shall do next

For the higher grades, from the fifth year up, direct the pupils with the following outline:

- I. The place:
- II. The characters
- III. The action, conversation, etc.
- IV. General observations, results, intentions, etc.

(b) *Impersonal interpretation.* Direct the pupils in a manner similar to that suggested above in the case of dramatic impersonation. Question somewhat as follows:

What is the name of the picture?
Where do you suppose the place is?
What strikes you most strongly about the place? Why?
What else is in the place?
Who are the people in the scene?
How do they look?
What are they wearing? Carrying?
What are they doing? Saying? Thinking?
What are their feelings? How can you tell their feelings?
What do they expect to do? What else may happen?

To make the situation more vivid, give the place a name, and introduce the characters as long friends, as, Joe, Mr. Tupper, or Fido, etc. Give a time to the action, as, last week, or yesterday, etc. Let the pupils tell the story as if they witnessed the scene and the action with their own eyes. Direct the class as follows:

Yes, here is where you were when it happened.
 When was it, last night or the night before?
 Tell me about this house, its rooms, stairways, etc.
 What is the path made of? Where does it lead?
 How long have you known Joe? What kind of a dog is Fido?
 How did it begin? Then what happened?
 What did Joe do? What did he say?
 What happened then? Was Joe satisfied?
 How do you think he felt?

Outline the composition for lower grade as follows:

1. My friend Joe
 Where he is
 What he is like
2. His work
 How he likes it
 What he is going to do

For higher grades use a more formal outline, thus:

- I. Time and place
- II. The people
- III. Work, action, conversation, thoughts, feelings, etc.
- IV. General results, plans, etc.

Do not restrict the pupils by giving them too detailed an outline. Let them freely imagine time and place, characters, action, conversation, results, etc.

IV. NARRATION

1. Third and fourth years. After the pupils are familiar with some story, historical narrative, etc., let them write on it. As children usually do not keep to the sequence of a narrative, but jump back and forth from part to part, hold them to the sequence by means of blackboard diagrams. Thus, in the story of 'The Fox and the Grapes,' impress the sequence as follows:

What the fox saw

What he said

What he did

Have the children tell all they can about the first incident before allowing them to pass to the second. Then do not allow them to return to the first or to mix up last with first. As the pupils tell the incidents write the different words on the board with possible variations, thus:

autumn day, day in autumn, a cool October day, etc.
 ripe, ripe and juicy, fit to eat, ready to burst their skins,
 etc.
 spread out, covering, hanging all around, etc.
 longed for, wanted to eat, was hungry for, mouth watered
 for, etc.
 made a jump, reached for, leaped towards, stretched him-
 self towards, etc.
 tired out, unsuccessful, weary with his efforts, etc.
 "The grapes are sour," "The grapes do not taste
 good," "Those grapes are not as sweet as the ones I have
 home." etc.

Let several pupils tell the story using one of the expressions written on the board. Try to get as many variations of the ending as possible. Use the same general scheme with other narratives, thus:

1 *Story of a Raindrop* 2

<i>Travels in the air</i> <i>Voyage to the ground</i>
--

<i>Travels on the ground</i> <i>Voyage to the ocean</i>
--

The oral work will bring out expressions like:

in the sky, far overhead, through the air, close to the
 heavens, etc.
 cold wind, biting wind, chilly breeze, a wave of cold, etc.
 dropping, plunging, falling, rushing, pattering, etc.
 struck, reached, stopped at, bounded to the ground, etc.
 dizzy with excitement, out of breath, frightened, crying
 with pain, etc.

Let the pupils tell the story in a purely impersonal manner, or let them impersonate the raindrop. In the latter case start the pupils in the first person as follows:

Now you are little raindrops.
 Where are you now?
 How do you move around?
 Can you see the earth, so high up?

2. Fifth through eighth years. Hold the pupils to the sequence of the narrative by means of the topical outline. Select some topic with which they are familiar, as, for example, 'The Founding of Georgia.' Question the pupils as follows:

Who was Oglethorpe?
 What was his plan?
 Whom did he want to help?
 What was the debtor's prison?
 How did he manage to equip the expedition?
 Who gave the grants? The money?
 How many families started?
 What kind of people were the settlers?
 Who came later? Why?

Write down the topics as they arise in the discussion, changing them to suit the purpose of the composition, thus:

Character of Oglethorpe
 His plan
 Condition of the poor in England
 The debtor's prison
 Grants and funds
 Character of the settlers
 The settlement
 Additions to the colony

After a number of topics have been written in sequence upon the board, lead the pupils to break them up into paragraph outline. Add and modify as you make the outline. Direct the class as follows:

What will you tell about first of all?
 What should go with Oglethorpe, his plan or the prison?
 What does 'prison' go with?
 How will you place 'character of the settlers?'
 Does 'grants and funds' belong to 'plan,' 'debtor's prison,'
 or 'character of the settlers?'

So the first paragraph will be:

I. Oglethorpe and his plan

The second:

II. The settlers, and
 III. The colony

Amplify each of these main topics, partly with the help of the pupils, and partly by your own additions, thus:

I. Oglethorpe and his plan

1. Character of Oglethorpe
2. His plan

Help the poor in prison

Form a military barrier between Carolina and Spanish Florida

II. The settlers

1. The debtor's prison
2. Government grants and aid
3. Character of people

III. The colony

1. Number of families taken
2. Regulations of the colony
3. New settlers. Wars

To make the narrative more vivid, let the pupils impersonate either Oglethorpe himself, or a poor debtor. In such case direct the children as follows:

What did you buy?

Why couldn't you pay for it?

Come now, pay or go to prison. Oh, that is the same story.

Officer, carry him away.

The outline will be somewhat as follows:

I. Why I was thrown into prison

1. My rent falls due
2. The family goes hungry
3. What I bought
4. The baker wants his money

The second and third paragraphs will assume somewhat the following form:

II. My new start in life

1. I am thrown into prison
2. The prison life
3. Oglethorpe and his plan

III. Life in Georgia

1. Fresh air once more
2. We set sail
3. Our new home
4. My neighbors

If the pupils impersonate Oglethorpe, direct them as follows:

Now, friend Oglethorpe, stand and tell the class what you saw in prison.

Was Mr. Jonathan there? How much did he owe?

What is your plan?

Where will you get the land?

Where is the money coming from?

What will the people need there?

Outline the composition on the board, thus:

I. The prison

1. My visit to the prison
2. What I see there
3. The sad case of Mr. Jonathan

II. My plan

1. Where can they settle?
2. I get land and money.
3. Preparations

III. The New World

1. We set sail
2. I am elected governor
3. We receive new settlers

When the pupils become poor debtors, let them choose between such titles, as A Debtor's Story, A New Start in Life, How I Came to Georgia, etc. If each pupil takes the part of Oglethorpe, give such titles as, How I Founded Georgia, A Plan to Aid the Poor Debtors, The Old and the New, etc. To assist the pupils in expression, write the more difficult words and expressions on the board as follows:

I. Oglethorpe

man of prominence, distinguished Englishman, etc.
 sympathy with the poor, feeling for the debtors, etc.
 help, aid, assist, encourage, do good to, etc.
 plan, object, idea, scheme, etc.

- II. debtor, misery, persecution, starvation, troubles, etc.
character, workingmen, farmers, large family, etc.
plan, charter, etc.
- III. founding, settlement, establishment, colonisation, etc.
regulations, government, laws, rules, directions, etc.
settlers, immigrants, newcomers, others, friends and
relatives, etc.

Write down these words and expressions as they arise in the discussion and oral work.

After the discussion and oral work, reinforce the narrative as interpreted by the pupils by presenting the following models:

In America there are fertile lands sufficient to subsist all the useless poor in England, and distressed Protestants in Europe; yet thousands starve for want of sustenance. The distance makes it difficult to get thither. The same want that renders men useless here, prevents their paying their passage; and if others pay it for them, they become servants, or rather slaves for years to those who have defrayed the expense. Therefore, money for passage is necessary, but it is not the only want; for if people were set down in America, and the land before them, they must cut down trees, build houses, fortify towns, dig and sow the land before they can get in a harvest; and till then, they must be provided with food, and kept together, that they may be assistant to each other for their natural support and protection.

The above is from Oglethorpe's own 'Brief Account' given by Hart in his *American History Told by Contemporaries*. The following, from the same source, is a quotation from the Charter:

His Majesty having taken into his consideration, the miserable circumstances of many of his own poor subjects, poor foreigners, who would take refuge here from persecution; and having a princely regard to the great danger the southern frontiers of South Carolina are exposed to, by reason of the small number of white inhabitants there, hath, out of his fatherly compassion towards his subjects, been graciously pleased to grant a charter for incorporating a number of gentlemen by the name of The Trustees for establishing the Colony of Georgia in America. They are empowered to collect benefactions, and lay them out

in clothing, arming, sending over, and supporting colonies of the poor, whether subjects or foreigners, in Georgia.

The following passages from *Pickwick Papers* will give an idea of a debtor's prison:

1. The coach having turned into a very dark and narrow street, stopped before a house with iron bars to all the windows; the door-posts of which were graced by the name and title of 'Namby, Officer to the Sheriffs of London.'

2. "My friend," said Mr. Pickwick, "you don't really mean to say that human beings live down in those wretched dungeons?"

"Don't I?" replied Mr. Roker, with indignant astonishment; "why shouldn't I?"

"Live!—live down there!" exclaimed Mr. Pickwick.

"Live down there! Yes, and die down there, too, very often!" replied Mr. Roker; "and what of that? Who's got to say anything against it? Live down there!—yes, and a very good place to live in, isn't it?"

The place was intolerably dirty, and the smell of tobacco-smoke perfectly suffocating. There was a perpetual slamming and banging of doors as the people went in and out; and the noise of their voices and footsteps echoed and re-echoed through the passages constantly.

As he sat down at the foot of the little iron bedstead, he began to wonder how long he would have to stay. He grew conscious that he was getting sleepy, whereupon he leisurely undressed himself, got into bed, and fell asleep.

3. "He won't be in chancery long, sir," replied Roker, turning his hat round, so as to get the maker's name right side upwards, as he looked into it.

"You make my blood run cold," said Mr. Pickwick. "What do you mean?"

"He's been a consumptive for a long time past," said Mr. Roker, "and he's been taken very bad in breath to-night. The doctor said, six months ago, that nothing but change of air could save him."

"Great heaven!" exclaimed Mr. Pickwick, "has this man been slowly murdered by the law for six months?"

The life of the people in Georgia is set forth in part by the following passage, taken from Hart's *American History Told by Contemporaries*:

They export some corn and lumber to the West-Indies: they raise some rice, and of late are going with success into

indigo. Georgia has two towns already known in trade: Savannah, the capital, which stands very well for business about ten miles from the sea, upon a noble river of the name, and Augusta, which stands upon a spot of ground of the greatest fertility. It is so commodiously situated for the Indian trade, that from the first establishment of the colony it has been in a very flourishing condition. The trade in skins with the Indians is the largest we have. We deal with them likewise in furs, but they are of an inferior sort.

In a narrative like 'The Story of a Raindrop,' hold the pupils not only to the sequence of the narrative, but also to some degree of accuracy, thus:

I. How I became a part of a cloud

1. Life in the ocean
2. I become vapor
3. Meeting my friends in cloudland

II. My fall

1. We sail along the sky
2. Our argument with the west wind
3. He becomes cold and bitter

III. Journey to the ocean

1. We join hands and fall
2. Our splash to the ground
3. We meet again
4. Good-bye

Give such a composition only after the pupils, in a geography or nature study lesson, have learned about the formation of rain.

Let the pupils invent as many incidents as they please. Hold them, however, to scientific accuracy when they deal with facts of nature. The following model is based on Geikie's *Text-Book of Geology*, and should be used to show the sequence in the formation of rain:

The substance we term water exists on the earth in three well-known forms, (1) as invisible vapor, (2) as water, (3) as ice. Vast quantities of vapor are continually rising from the surface of the seas, rivers, lakes and snow-fields of the world. This vapor remains invisible until the

air containing it is cooled down below the dew point. This happens when it meets a cold current of air or when it strikes the cold side of a mountain. At first minute particles of vapor appear and begin to form clouds. As these changes take place over considerable spaces of the sky, they give rise to large clouds. Further condensation increases the size of the cloud particles and at last they fall to the earth as rain. In many places it falls to the earth and sinks underground to gush forth again in springs. In other places it pours down the slopes of the land, swelling the brooks and torrents, which, fed by both springs and rains, gather into broader and yet broader rivers that bear the accumulated drainage of the land into the sea. Thence once more the vapor rises, condensing into clouds and rain to feed the innumerable water channels by which the land is furrowed from the mountain-top to the seashore.

3. Change of poetry to prose. Use either a memory selection or a selection which the pupils can have before them in a reader or on a duplicated sheet. Have the class use the selection either for (1) direct metaphrase, (2) impersonal narration, or (3) dramatic impersonation. For example, take the following selection:

Eldorado

- I. Gaily bedight,
 A gallant knight,
 In sunshine and in shadow,
 Had journeyed long,
 Singing a song,
 In search of Eldorado.
- II. But he grew old—
 This knight so bold—
 And o'er his heart a shadow
 Fell as he found
 No spot of ground.
 That looked like Eldorado.
- III. And, as his strength
 Failed him at length,
 He met a pilgrim shadow—
 "Shadow," said he,
 "Where can it be—
 This land of Eldorado?"

- IV. "Over the Mountains
Of the Moon,
Down the Valley of the Shadow,
Ride, boldly ride,"
The shade replied,—
"If you seek for Eldorado!" —E. A. Poe

Develop the meaning of the selection in the manner suggested in the chapter on the visual appeal in reading. Ask the pupils for different expressions and add some yourself as follows:

I. gaily bedight, clad in gay colors, with coat of mail
and banner streaming, in clothes of gaudy hue, etc.

gallant, brave, bold, strong and cheerful, etc.

in sunshine and in shadow, through all the world, in
many lands, from place to place, etc.

singing a song, careless and free, happy in his
might, cheered with the hope of fortune, afraid of no one,
etc.

in search of Eldorado, seeking his fortune, hoping
to become rich, looking for the pot of gold, etc.

Proceed in a similar manner with the other paragraphs. Encourage as much diversity of expression as possible. Urge the pupils to vary each expression as it is written on the board. The further treatment of the selection will depend upon the kind of composition to be written.

(a) *Simple metaphor.* With the selection before them, ask the pupils to change it to prose. In the lower grades have the first and second stanzas written in one paragraph, and the third and fourth stanzas written in another. If necessary aid the class by means of the following outline:

1. Dress of the knight
His journey
His search
Hope and failure
2. Weakness of the knight
Meeting with the shadow
Question asked
Answer of the shadow

In the higher grades considerable variation may be allowed. Encourage the pupils to amplify descriptions and invent possible situations. Direct them as follows:

How was the knight dressed?
 What shape was his helmet?
 What weapons did he carry?
 Where did he travel?
 What people did he meet?
 What did he learn from them?
 How did he begin his search?

Arrange an outline like the following:

I. The knight

1. Dress and armor
2. Travels
3. What he learned

II. Search

1. How he set out
2. His adventures
3. He hears of the pot of gold

III. Failure

1. He travels onward
2. His questions of travelers
3. Meets with the pilgrim
4. Why he returned home

(b) *Impersonal narration.* Use the story as a basis. After the pupils have had the selection explained, remove it from their view. Question the pupils for the purpose of getting their interpretation of the piece, and of securing a title for the composition. Proceed somewhat as follows:

What did the knight believe?
 Where do you think this gold was?
 Who has heard of the 'pot of gold at the end of the rainbow?'
 What are some of the things we would like to have?
 Can we always get them?
 What were some of the things the knight wanted?
 How did he try to get them?
 Where did he travel?

For the lower grades develop an outline like the following?

The Pot of Gold

1. The poor knight
Some of the things he wanted
Search for gold
2. His journey
Some of the things he found
What he didn't find
Why he could not get the pot of gold

For the higher grades aid the pupils in forming the following outline:

A Poor Man's Wish

- I. Mr. James Reynolds
 1. Daily work
 2. His family
 3. What he wanted
- II. His search
 1. Studies in night school
 2. Studies in the factory while at work
 3. Questions asked
- III. His failure
 1. Salary not raised
 2. Increased cost of living
 3. What he found better than money
 4. Money not all. Other good things.

(c) *Dramatic impersonation.* In the lower grades keep fairly close to the story of the poem. Lead the pupils to take the personal attitude as follows:

Let me see who can make the best knights.
Step up, Henry. Get on your horse.
Hold your lance right. Put on your helmet.
Now tell the class what you have heard.

Have several pupils march round as knights. Let them search round. Let them show weariness. Have a pilgrim come, etc. Develop the following outline:

My Search for Gold

1. I hear of a gold mine
I fit myself out
My armor and horse
I set out
2. My travels
People I meet
I meet the pilgrim shadow
What he tells me

In the higher grades lead the pupils to connect their own desires with the feeling of the knight. Question as follows:

What would you like to have?
No, something that is very hard to get.
Why do you want it?
What will you have to do to get it?
Make your preparations.
When will you start?
What do you expect to do?

Construct an outline on the board as follows:

My Ambition

- I. What I hope to be
 1. Some great man
 2. Why I want to succeed
 3. What I can do now
- II. My plans
 1. What I am studying now
 2. What I hope to do later
 3. How long it will take
- III. A man
 1. My life work
 2. How I hope to improve
 3. What I expect to be at 40

V. DESCRIPTION

1. **Third and fourth years.** Let the pupils describe something with which they are familiar. Do not ask for more than one or two paragraphs. Let each pupil describe, for example, his dog or some

dog that he knows. Question the children to bring out different aspects, thus:

Who has a dog? Do you know any dog?
Does he come when you call him?
How does he come?
How does he show that he is pleased to see you?
What else does he do?
Does he ever do anything wrong?
What is he like?
Tell what he looks like, from his nose to his tail.
Why do you like him?

As the pupils talk, write down expressions as they arise and add to them as follows:

jumping, leaping for joy, springing in the air, bounding,
etc.
ears down and tail wagging, head and tail keeping time, etc.
licks my face, cuddles up to me, put his paw on my arm, etc.

Write down topics as follows:

My Dog —

1. How he meets me
Some of his tricks
2. What he looks like
Why I like him

After the oral work present one or more models. The following is based on Ernest Seton-Thompson's 'Chink: The Development of a Dog,' in *Lives of the Hunted*:

Chink was just old enough to think himself a very remarkable little dog. So he was, but not in the way he fondly imagined. He was neither fierce, strong, nor swift, but he was one of the noisiest, best-natured, silliest pups that ever chewed his master's boots to bits. He could never be still for five minutes. He would do anything he was told to do except keep still. He was always trying to do some foolish and impossible thing.

The following is based on Brown's *Rab and His Friends*:

He was brindled and gray like granite. His hair was short, hard, and close, like a lion's. His body was thick-set, like a little bull. He must have been ninety pounds' weight at the least. He had a large, blunt head, with a muzzle black as night, and a mouth blacker than any night. His head was scarred with the records of old wounds. And then that bud of a tail, about an inch long, constantly wagging from side to side.

The following is based on London's account in *The Call of the Wild*:

Unlike Skeet, who was wont to shove her nose under Thornton's hand and nudge and nudge till he petted, or Nig, who would stalk up and rest his great head on Thornton's knee, Buck was content to adore at a distance. He would lie by the hour, eager, alert, at Thornton's feet, looking up into his face, dwelling upon it, studying it, following with keenest interest each fleeting expression, every movement or change of feature. Sometimes he would lie farther away, to the side or rear, watching the outlines of the man and the occasional movements of his body.

Do not attempt any formal study of the model. Use it simply to aid the pupils in getting started in their composition and to give them an idea how others treat the same subject matter. Keep models in mind as you question the pupils so that there may be some correspondence between the compositions of the pupils and the models presented.

A more systematic description is possible with a topic like 'Our Classroom.' Fix some point of view from which the room is to be described. Then indicate the order in which the description is to be made. Question as follows:

Where can you see the whole room, sides, top, floor back?

Suppose you stand at the door?

Now tell what the walls look like. The ceiling?

Where is the board? Where are the windows?

How are the walls decorated?

Now tell what is in the room.

How are the seats arranged?

What is on them? Where is the desk?

What do you like most about the room?

Write down descriptive words and phrases as they arise in the discussion :

look around, stare ahead of me, observe the room, etc.
pale green, lighter than the grass in the park,
dirty yellow, looking as if it never had been washed,
cracked and marked, like the face of a wrinkled hag,
like a barn, without color or art, etc., etc.
a long, oblong window with dirty panes,
one window in the rear, a pane out and another cracked, etc.

Call attention to special features. Pause at parts of the room and ask for different expressions to describe the color, size, position, kind of dirt spot, what the molding reminds one of, and the like. Indicate the general order of the description by an outline like the following :

1. The walls and the ceiling
What is on the walls
2. The floor and the desks
Other things in the room
What I like in the room

Lead the pupils to compare the classroom with some other room, described, for example, by the following, taken from Johnson's *The Country School* :

The room was plain and bare—no pictures, no maps, not even a blackboard. The walls were sheathed with wooden panels, but the ceiling was plastered. On each side, to the north and south, was a window, and at the back two. The fireplace was on the fourth side, projecting into the room. To the right of it was the entrance, and to the left was a door opening into a dark closet containing pegs for the girls to hang their things on, and a bench where they set their dinner baskets.

A single continuous line of desks ran around three sides of the room, leaving an open space next the wall along which the scholars walked when they went to their places. The seat accompanying this long desk was also continuous, and the scholars were obliged to step over it before being seated. Both seat and desk were raised on a little platform a few inches above the level of the floor. On the front of the desk was another seat, low down, for the smaller chil-

dren. They could use the desk for a back, but had no desk themselves, while the older children had the desk, but no back. In the open space, in front, was the teacher's table, and on it two or three books, an ink bottle and quills, a lot of copy books, and a ruler.

A little more feeling is infused in Dickens' account in *David Copperfield*:

I gazed upon the schoolroom into which he took me. I see it now. A long room, with three long rows of desks, and six of forms, and bristling all around with pegs for hats and slates. Scraps of old copy-books and exercises litter the dirty floor. Some silkworms' houses, made of the same materials, are scattered over the desks. A bird in a cage, very little bigger than himself, makes a mournful rattle now and then in hopping to his perch, two inches high, or dropping from it; but neither sings nor chirps. There is a strange unwholesome smell upon the room, like mildewed corduroys, sweet apples wanting air, and rotten books. There could not be more ink splashed about, if it had been roofless from its first construction, and the skies had rained, snowed, hailed, and blown ink through the varying seasons of the year.

2. **Fifth through eighth years.** With the pupils of the higher grades use a topical outline. Choose a subject which will rouse some interest. With a topic like 'My Classmate,' direct the pupils as follows:

Who is your friend in the class?
How did you first meet him?
What does he look like?
Describe his general expression?
What color are his hair, eyes?
How does he dress?
How does he act?

As the pupils give descriptions outline the composition:

I. My classmate

1. How I met him
2. What he looks like
3. His general character

II. His dress

1. General neatness, as, collar, tie, shoes, hair, etc.
2. How he takes care of his appearance

III. His actions

1. What he does at home
2. Actions on the street
3. Why I like him

Write several introductory sentences as they are given. Call for others. Modify them as you write them on the board, thus:

Last year when I first came to school I could not find my way.

One of the finest boys I know is, etc.

If you should meet me on the street at any time.

I sit next to a boy named ———.

Write down descriptive phrases as they arise, as follows:

long, lank and hungry looking,
long and straight, like a pine tree,
well built, solid, short and heavy,
smiling eyes, eyes bubbling with fun, eyes honest and true,
brown, curly hair, brown shiny hair, thick black hair

Show how other boys and girls have been described by presenting models. When the pupils are about through with the oral work, introduce a model description or two. The following are from Washington Irving's *Legend of Sleepy Hollow*:

He was tall, but exceedingly lank, with narrow shoulders, long arms and legs, hands that dangled a mile out of his sleeves, feet that might have served for shovels, and his whole frame most loosely hung together. His head was small and flat at the top, with huge ears, large green glassy eyes, and a long snipe nose, so that it looked like a weather-cock, perched upon his spindle neck, to tell which way the wind blew. To see him striding along the profile of a hill on a windy day, with his clothes bagging and fluttering about him, one might have mistaken him for the genius of famine descending upon the earth, or some scarecrow eloped from a cornfield.

He was broad-shouldered and double-jointed, with a short curly black hair, and a bluff, but not pleasant counte-

nance, having a mingled air of fun and arrogance. He was always ready for either a fight or a frolic; but had more mischief than ill-will in his composition; and, with all his overbearing roughness, there was a strong dash of waggish good humor at bottom. In cold weather he was distinguished by a fur cap, surmounted with a flaunting fox's tail. The neighbors looked upon him with a mixture of awe, admiration, and good will; and when any madcap prank, or rustic brawl, occurred in the vicinity, always shook their heads, and warranted Brom Bones was at the bottom of it.

She was a blooming lass of fresh eighteen; plump as a partridge; ripe and melting and rosy cheeked as one of her father's peaches, and universally famed for her beauty and good nature. She was withal a little of a coquette, as might be perceived even in her dress, which was a mixture of ancient and modern fashions, as most suited to set off her charms. She wore ornaments of pure yellow gold, which her great-great-grandfather had brought over from Saardam; the tempting stomacher of the olden time; and withal a provokingly short petticoat, to display the prettiest foot and ankle in the country round.

The following is a more ambitious model taken from Meredith's *The Egoist*:

She had the mouth that smiles in repose. The lips met full on the center of the bow and thinned along to a lifting dimple; the eyelids also lifted slightly at the outer corners and seemed, like the lip into the limpid cheek, quickening up the temples, as with a run of light, or the ascension indicated off a shoot of color. Her features were playfellows of one another, none of them pretending to rigid correctness, nor the nose to the ordinary dignity of governess among merry girls, despite which the nose was of fair design, not acutely interrogative or inviting to gambols. She had a pure, smooth-white face, tenderly flushed in the cheeks, where the gentle dints were tenderly intermelting even during quietness. Her eyes were brown, set well between mild lids, often shadowed, not unwakeful. Her hair of lighter brown, swelling above her temples on the sweep to the knot, imposed the triangle of the fabulous wild woodland visage from brow to mouth and chin. Her face was not significant of a tameless wildness or of weakness; her equable mouth threw its long curve to guard the small round chin from that effect. Her eyes wavered only

in humor. They were steady when thoughtfulness was awakened; and at such seasons the build of her winter-beechwood hair lost the touch of nymph-like and whimsical, and strangely, by mere outline, added to her appearance of studious concentration.

Bring out orderly description of incidents in a fire as follows:

- Who has seen a big fire?
- How did you know there was a fire?
- Was there any noise?
- What were some of the things that cause the noise and excitement?
- How did the people on the sidewalk behave?
- Were there any police there? What did they do?
- Were there any people in the burning building?
- What did they do?
- How did the firemen work the hose?

Outline the series of incidents as follows:

- I. How I came to the fire
 - 1. I am sent on an errand
 - 2. I see a crowd running
 - 3. I follow and come to the fire
- II. What I see and hear there
 - 1. What I see on the street
 - 2. What I see in the building
 - 3. The fire engines
- III. How the fire is put out
 - 1. Playing the hose in the front
 - 2. Over the elevated tracks
 - 3. How the fire dies down

As in the case of the preceding compositions, question pupils for introductory sentences and for descriptive expressions. Write them on the board, thus:

- rush, roar, noise, excitement, uproar, etc.
- crowd of people, scurrying men and women, large number, etc.
- struggle, push, forge ahead, run wildly on, etc.
- shrieking, screaming, shouting, crying aloud, etc.
- drag, pull, push through, labor with, etc.

Present an interesting description of some fire. The following is taken from *Riis' Children of the Tenements*:

The rush and roar, the blaze and the wild panic of a great fire filled Twenty-third Street. Helmeted men stormed and swore; horses tramped and reared; crying women, hurrying hither and thither, stumbled over squirming hose on street and sidewalk. Firemen and policemen stumbled against the crowd with angry words, stopped and pushed the people back.

From the tenements next door men and women dragged bundles and feather beds, choking stairs and halls, and shrieking madly to be let out. The police struggled angrily with the torrent. The lodgers in the Holly-Tree Inn, who had nothing to save, ran for their lives. In the rear of the building the toppling wall swayed a moment and fell with a crash.

Fire bells rang in every street as engines rushed from north to south. A general alarm had called out the reserves. Every hydrant for blocks around was tapped. The throbbing of a dozen engines merged all other sounds in its frantic appeal for haste. Engine crews climbed upon the track of the elevated road, picketed the surrounding tenements, and stood their ground on the roof tops. Each hose threw a stream as big as a man's thigh. Half a dozen were soon playing steadily upon the front of the burning building. Two streams found their way over the elevated tracks through the hose that had been pulled aloft there. The resistless streams washed down brick and stone into the yard as upon the wave of a mighty flood. Within the building was soon an ample lake filled with hissing embers. The fire was out, the firemen going home.

VI. EXPOSITION

Proceed with exposition in much the same manner as that suggested for narration. Hold the pupils to the sequence of actions, or parts. Take subjects which are near to the lives of the children. In addition to an outline make a diagram or drawing on the board if necessary. Select some topic like, 'How We Build a Snow House.' Question as follows:

Who has ever built a snow house?
What tools did you use?
How did you begin?

Who helped you? What did they do?
How big did you make the house?
How did you finish it? What did you put inside?

As the pupils relate their experiences write a series of topics on the board:

The snow storm
We have a snow fight
Jack suggests we build a fort
Getting the tools
How we borrow from Mr. Jones
Getting to work. The bottom caves in
Beginning again
Building the walls
Freezing the snow

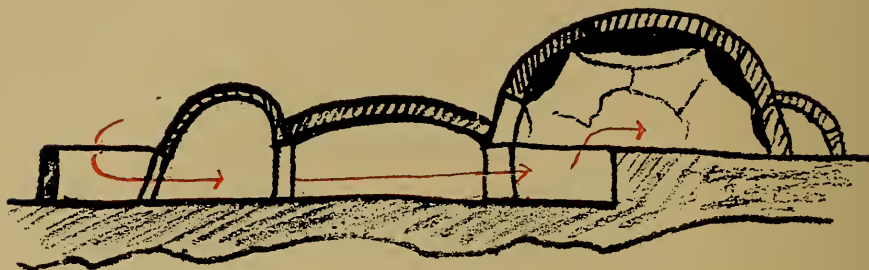
Have the pupils group the topics for paragraph structure, thus:

What shall we use for the first paragraph?
Which comes first, planning the work or getting the tools?
Where would we place the topic, 'Getting the tools?'
In what paragraph will the work of finishing be explained?
Who can outline the first paragraph?

Modify and add to what the pupils give. Arrange the topics somewhat as follows:

1. The snow storm
 1. It snows
 2. The snow fight
 3. Jack's idea
2. Building the fort
 1. We borrow the tools
 2. Laying the foundation
 3. Putting up the walls
3. Finishing the fort
 1. Packing the snow
 2. Freezing the snow with water
 3. Ornamenting the inside

After the oral work and discussion introduce a model. Make the following diagrams on the board and explain how the snow house is built:



In addition present the following account, based on Boas' 'The Central Eskimo,' in the *Annual Report of the Bureau of Ethnology*, 1884-1885:

Two men unite in building a house, the one cutting the blocks, the other building. At first a row of blocks is put up in a circle, the single pieces being slanted so as to fit closely together. Then the first block is cut down to the ground and the top of the row is slanted so as to form one thread of a spiral line. The builder places the first block of the second row with its narrow side upon the last block and pushes it with his left hand to the right so that it touches the last block of the first row. Thus the snow block, which is inclined a little inward, has a support on two sides. Every block is inclined a little more inward than the previous one, and as the angle to the vertical becomes greater the blocks are only kept in their places by the neighboring ones.

The following is another account given by Ratzel in his *History of Mankind*:

The snow huts are built as follows: From the hard surface of the snow, which storms have bound fast and close, they cut blocks 16 inches square and 6 inches thick. These are laid in one spirally-ascending course, so as to form a dome-shaped vault. Two such domes side by side represent the entrance hall (where the dogs are kept) and the dwelling room; while a third serves to keep utensils in. A gallery excavated in the snow serves for entrance, and a

slab of snow closes the door. With an exterior height of somewhat over 8 feet a man of average stature has room to stand upright; and the outside is made smooth and tight by plastering with snow.

With a subject like, 'How I Made Coffee,' proceed in a similar manner. Question and direct as follows:

Suppose now that no one is home, and there is no coffee ready. How will you begin?
Where do you keep the coffee?
What else do you need?
What will you do now?
How will you fix the coffee for the boiling water?

Write down topics on the board as the pupils explain:

I am left alone
No coffee in the house
I get the water ready
How I prepare the coffee
I set the table

Then lead the children to arrange the topics in the proper sequence, thus:

I. Minding the house

1. Why my mother left me alone
2. I wish to surprise mother
3. Getting the material

II. Cooking the coffee

1. I get the water ready
2. I prepare the coffee
3. Boiling the coffee

III. I surprise mother

1. I set the table
2. Arranging the cups, etc.
3. Mother comes

When the children are ready to write introduce some model to show how others prepare coffee. The following is from Du Chaillu's *Land of the Long Night*:

Two women went out and collected a lot of snow, which they put on to melt in a big iron pot hanging over the fire. This is the way the Lapps have to do to procure water. When the snow had melted she put the water in a coffee kettle that had a spout. One of the women ground coffee in a mill. Then the ground coffee was put into the kettle and left to boil for quite a while, the woman watching it, taking off the pot when it was about to boil over, and then putting it on the fire again. The third woman was attending to the cups and saucers. When the coffee was ready they put in a little bit of salt to give it a flavor, then set the kettle on the ground and put into it a small piece of dried fishskin to clarify it and precipitate the grounds at the bottom of the kettle.

When the coffee was ready to be poured, one of the women went out and came back with reindeer milk which had remained frozen for over three months. Then the coffee was served. The wife bit off several pieces of rock candy from a big lump, to sweeten each cup of coffee, and after putting in frozen reindeer milk with a spoon, licked it with her tongue. We had silver spoons, round in shape, with twisted handles. After coffee, men, women and the young girls filled their pipes and had a good smoke.

If necessary, write an account of how to make coffee as explained in a standard cook book. Wherever possible, lend some interest to the exposition by surrounding it with a story. Instead of a bare 'How to Make Coffee' present a story which deals with the making of coffee, as in the case of the above. Dramatic impersonation will add interest.

VII. LETTERS

Make the writing of letters as real as possible. Have the pupils bring catalogues for price lists, let them cut up newspapers for advertisements, let them return, order, or write complaints about things used in the school or classroom, as, desks, pads, pens, books, and the like. Direct them by writing an appropriate outline on the board:

(a) *Asking for a position*

Who I am, boy, girl, age
What I can do
What I am willing to do
References

(b) *Asking for price lists, etc.*

Request

Specify kind, date, etc.

Thanks

(c) *Ordering goods*

Specify kind, quality, amount, etc.

Specify where to send, how to send, etc.

Thanks

(d) *Complaints, etc.*

Specify what was ordered, kind, quality, amount, etc.

Specify what was received, time, condition, amount, etc.

Regrets

Let the pupils dramatise the situation. Direct them as follows:

Here now, John, you will have to go to work. Get the paper.

Look up some of the advertisements. Read one out.

Mr. Smith, let me see that book that was ordered.

Look at the condition of that book. When did it come?

Write to the publishers. Tell them what is the matter with it.

We need some more paper. What kind do you want?

How much is it? Look up the price list.

Write and order 10 dozen packages.

Tell them when we want it and where to send it.

Deal with the content of social letters as in the case of narration, description, or exposition. Let the pupils write to their friends in the classroom. Pair them off and let one write to the other. Get a list of the names of the pupils in another class and have the pupils write to the children of the other class. Let the pupils write invitations to their friends and parents for receptions, meetings, visits, etc.

CHAPTER VIII

COMPOSITION — VISUAL (Concluded)

I. USE OF THE MODEL

Use the model simply as an aid to expression. See that it corresponds closely with what the pupils are ready to express. Do not introduce any model which deals with an unfamiliar subject. Let the pupils write on topics drawn from the history, nature study, reading, etc., of the grade. When the pupils are ready to take up composition, introduce a model which shows that some other writer has felt a similar need of expression, and has dealt with a topic much like the one in the minds of the children. At first introduce a model without attempting any analysis or formal study of it. Give it in the manner suggested in the preceding sections. After one or two compositions have been written let the pupils study the model more closely. Of the qualities of structure, aim for unity, coherence and sequence. Use the model in any one of the following ways:

(a) Immediately after the oral work and before the written. No formal study need be made.

(b) As the basis of expression. All expression, oral and written, must then be based on the model.

(c) After the first draught of the composition has been written. Pupils then compare their own work with the model, correct and amplify their copy, and then rewrite, making whatever changes and improvements the study of the model has suggested.

II. REPRODUCTION

Third and fourth years (a) *Narration*

Heracles' First Task

The first task was to kill a great lion. This fierce animal lived in a forest. He robbed the people of their cattle. He was so strong that he could kill a man with one blow of his huge paw. When he roared, the sound could

be heard many miles away. He was a monster with a hide so tough that no sword could pierce it.

* For several days Hercules searched for this lion, and at last found him. He pulled up a young oak tree by the roots, and with it drove the beast into a cave. Following in boldly, he choked him to death. Then he threw the carcass over his shoulders, and carried it to his master.

From *The Progressive Road to Reading*, Book 3,
By G. Burchill, W. L. Ettinger, and E. D. Shimer

Have this model written on the board. If the children have the story in their readers, let them have their books open before them. Question as follows to bring out the sequence of the story:

What was the first task?
Where was the lion? What did he do?
Why were the people afraid of him?
How did Hercules find him?
What did he do?

Show how these topics are grouped, as follows:

What does the first paragraph tell us?
How do we know that the lion was strong?
What does the second paragraph tell us?
How many things did he do? Name them.

Arrange the paragraphs, as follows:

1. The lion
What he did
What kind of an animal he was
2. How Hercules found the lion
What he did
How he killed the lion

Bring out the different expressions possible by the following questions:

Why was the lion called a fierce animal?
What else can we call him?
What does 'robbed' mean?
Read the third sentence and use other words.
How else can we say he was heard 'many miles away?'

Add to the expressions which the children give and write them on the board:

1. the first task, what he had to do first, his first great labor, etc.
 fierce animal, terrible animal, animal which frightened every one, etc.
 he was so strong, his strength was so great, he was so powerful, etc.
 many miles away, a great distance, from afar, far, far away, etc.
 pierce, go through, cut, hurt, wound, etc.
2. searched, tried to find, hunted for, sought etc.
 pulled up a young tree, took a tree and tore it from the earth, etc.
 drove the beast, faced the animal and made him retreat, etc.
 boldly, without fear, bravely, etc.
 carcass, dead body, body of the lion, etc.

After the discussion, after the topics have been developed and written on the board, and after the different expressions have been given, let the children tell the story orally, without the model. Either cover the model or erase it. Let the written work then follow. Encourage the children to vary the expressions as much as possible. Tell them to keep to the sentences which outline the paragraphs, and let them know that they may, if necessary, use any of the expressions written on the board. It may be necessary to emphasise the fact that the paragraph is indented, that the sentence begins with a capital, and that it ends with a period. In the model make the periods and capitals extra heavy for this purpose.

(b) Description

The Farm in Lapland

The Lapp's farm had three buildings. There were on this farm three diminutive cows, an ox of the size of the cows, nine sheep, and they owned besides quite a number of reindeer. The cows were getting smaller and smaller as I went north. In the little dwelling-house was a small room for a stranger; reindeer skins made the mattress. My guide and I ate together. We had excellent coffee. smoked reindeer meat, and milk.

Further on we stopped awhile at a little farm owned by a woman and her daughter. The mother and daughter worked as if they were men; they fished for salmon in the river in summer, mowed hay, collected reindeer moss to feed their cows, went after wood. A faithful dog was their companion. At some seasons the daughter descended the river, and engaged herself as one of the crew on board of a fishing boat on the Arctic Ocean.

From *The Land of the Long Night*

By Paul Du Chaillu

Bring out the different expressions as follows:

Name the animals mentioned in the first paragraph.

Name them again, telling what kind they are.

What other words can you use for 'diminutive'?

Read the second sentence and begin with the names of the animals.

Change the order and the words in the third sentence.

As the pupils give them write down the different expressions:

- diminutive, puny, very small, very little, etc.
- getting smaller and smaller, became smaller in size, etc.
- the mattress was made of reindeer skins, a reindeer mattress was on the floor, etc.
- are together, at at the same table, I ate with my guide, etc.

Question the pupils for the point of view:

Where is the writer when he tells of the animals?

Where is he when he tells of the inside of the house?

Does he stay there? How do you know?

Did the writer stay at the next farm? Did he eat there?

What do you think he did there?

Develop the order of description as follows:

The writer is traveling. What does he see?

He goes inside the house. What does he see?

He goes on further. What does he see?

Does he stay? What does he ask the woman?

What does he find out?

Now, what shall we tell in the first paragraph?

The two things are:

1. The farm animals
The farm building

For the second paragraph we have:

2. Another farm
The inhabitants

With the model removed from view, but with the outline and expressions on the board, let pupils reconstruct the description their own.

(c) *Letters*

218 East 98 Street,
New York, June 5, 1912.

Dear Miss Smith,

Please to excuse my son George for his absence yesterday afternoon. I had to go down town, and there was no one to mind the baby. I thank you for your courtesy, and am,

Very truly yours,
M. Fredericks.

Write the model on the board. Question as follows:

What kind of paper should you use?

Here are some of the notes I have received. Are they written on the right kind of paper? What is the matter with the edges?

Next time you are absent, bring in notes like the one on the board. Suppose you have to write one for your brother. Yes, let your mother sign it.

What do you put on the first line? The second?

Where is the first comma?

Why do you not sign 'Sincerely'?

When would you sign 'Sincerely'?

Rub out the body of the letter. Have the pupils read a few letters as much like the original as possible. Let them then write a note of excuse. Do not attempt anything very ambitious. Aim for clear, short statements. Proceed in a similar manner with a letter of the following kind:

280 East 88 Street,
New York, June 28, 1912.

Dear Josie,

Could you come to our entertainment on Friday afternoon? We should be so glad to have you. You know I am going to graduate and mother is giving a small party. There will be singing and dancing, and I can promise you a good time.

Sincerely your friend.

E. Thaxter.

2. Fifth through eighth years

(a) *Narration*

The Discovery of Gold

As Marshall was working in a ditch near Captain Sutter's sawmill, he observed particles of yellow metal which he gathered up in his hand. It seemed suddenly to flash across his mind that it was gold. After picking up about an ounce he hurried down to the fort to report to Captain Sutter his discovery. It was in February or March, 1848. As Sutter was sitting in the fort he heard a knock at his door and said, "Come in." In walked Marshall, who was a half-crazy man at best, but who then looked strangely wild. "What is the matter, Marshall?" asked Captain Sutter. Marshall inquired if any one was within hearing, and began to peer about the room and look under the bed. Sutter, fearing that some calamity had befallen the party at the sawmill, and that Marshall was really crazy, began to make his way to the door. At the same time he demanded that Marshall explain what was the matter. At last he revealed his discovery and laid before Captain Sutter the pellicles of gold he had picked up in the ditch.

Marshall returned to the mill, but could not keep out of his wonderful ditch. By some means the other men employed there learned his secret. Then they wanted to gather the gold, but Marshall threatened to shoot them if they attempted it. These men had sense enough to know that if placer mining existed at Coloma, it would also be found farther down-stream. They gradually prospected till they reached Mormon Island, fifteen miles below. Here they discovered one of the richest placers on earth. They revealed the fact to some other Mormons who were employed by Captain Sutter, and so the news spread.

As the spring and summer of 1849 advanced the reports came faster and faster from the gold mines at Sutter's sawmill. Stories reached us of fabulous discoveries, and spread throughout the land. Everybody was talking of 'Gold! Gold!' Some of the soldiers began to desert. Citizens were fitting out trains of wagons and pack-mules to go to the mines. We heard of men earning fifty, five hundred, and thousands of dollars a day. For a time it seemed as if somebody would reach solid gold.

From Memoirs of Gen. W. T. Sherman

Write the above model on the board or give it out on duplicated sheets. At least put the most important parts before the pupils and fill in with story and explanation. Develop the topic sentences and the further amplifications of the topic sentence, as follows:

Read over the first paragraph carefully.

Who is the person of account in that paragraph?

Put into one sentence what he does.

Take the topic,

1. What Marshall discovered

Tell where he was working.

How did he come to find the gold?

What did he do then?

Was he excited? How did he show it?

The first paragraph will be,

I. What Marshall discovered

1. Work at the sawmill

2. Finding gold

3. What Marshall did with it

In a similar manner bring out the topics of the other paragraphs:

II. Further discoveries

1. Other men find gold

2. What they do

3. The report spreads

III. The gold fever

1. Reports from Sutter's sawmill

2. What people do

3. Wild rumors

In the oral work have the pupils express the same thought in different ways. Write down these expressions on the board or have the pupils copy them on trial sheets. Some of these expressions will be:

In 1849 gold was discovered in California.
It was by the merest accident that gold was discovered.
In a ditch at Sutter's sawmill, a man named Marshall, etc.

It flashed across his mind that it was gold.
There it was, pure, virgin gold.
He felt his fortune was made. It was gold.

He looked strangely wild.
A wild excitement seemed to burst from his every pore.
He had never acted so strangely before.
He was quivering with excitement.

Treat each of the paragraphs in this manner. The pupils will then be ready for more coherent oral work and for written composition.

(b) Description

An Indian Teepee

In times of prosperity the Indian teepees are by no means unsightly. They are of caribou skin stretched around and to within about three feet of the top of the poles, which number according to the size of the lodge. The sides of the circle are banked up with snow and pine-brush, and inside the smallest brush makes a clean-looking and pleasantly smelling floor. The open fire occupies the center, and above it, stretching from side to side of the lodge, are poles upon which the meat is placed to thaw, and from which the kettles are suspended.

Domestic economics are a dead letter in the Indian household. There is no place for any particular thing, and nothing is ever in any particular place. The back part of the lodge, where it is too cold to sit even when the fire blazes highest, appears to be the general store-room. Everything not in immediate use is thrown there in indiscriminate confusion. If the squaw has finished stripping a caribou leg of its meat, she tosses the bone over her shoulder into the unknown behind her: if she has completed the lacing of a snow-shoe, it is served similarly. The Indian hurls his knife there when he is through with it, and the children do the same with the bones or

intestines or bits of meat they may have filched from the feasting, in which they never share. And when there is a demand for anything, such an overhauling ensues as would put to shame a May-day house-cleaning.

From C. Whitney's *On Snow Shoes to the Barren Grounds*,
In Herbertson's *Descriptive Geography of North America*

Present the model. Bring out the point of view as follows:

- Is the writer inside or outside of the teepee?
- What expressions in the first paragraph tell you he is inside?
- What does the first paragraph deal with?
- From what part of the teepee does the description begin?
- Where does the description stop?
- Name the parts in the order of their description.
- What is the topic of the second paragraph?
- What details are given to amplify this topic?
- Give the subtopics.

As the pupils answer, arrange the topics and subtopics as follows:

I. The teepee

1. Outside
2. Supports
3. Things inside

II. Household economy

1. Lack of order within
2. How the women keep things
3. How the men and children keep things

Secure different expressions and phrases, thus:

- State the first sentence differently.
- What other word can be used for unsightly?
- Begin the second sentence with the words 'Around and to within.'
- What kind of a floor is there?

In the oral work have the pupils express the same thing in a number of different ways. Write down some of the expressions on the board, thus:

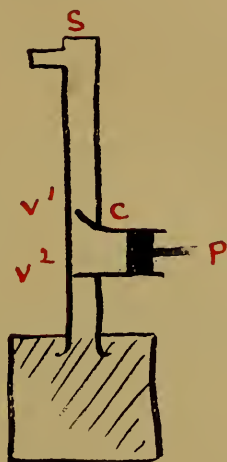
- unsightly, ugly, without taste, etc.
- stretched around, surrounding, covering, letting pole-ends peep out, etc.

very attractive floors, made pleasant with, cleanly and wholesome with pine-brush, etc.
occupies the center, in the center is, throws its heat from the center of the tent, etc.

Let the pupils follow the outline and make use of any of the expressions they choose.

(c) *Exposition*

The Pump



S is a hollow tube which dips into a body of water.

P is a piston which fits into the cylinder C.

V1 is a valve which swings up and into S.

V2 is a valve which swings up and into C.

When the piston is moved out, water is drawn into C through valve V2. Valve V1 closes. When the piston is moved in, valve V2 closes, and the water is forced through valve V1 and out into tube S. In this way a fire engine or other engine can send a continuous stream of water in any direction.

Make several sketches of a pump on the board.

Point to the parts and call upon pupils to name them.

What is P? What is V1? Etc.

Ask for the relative positions of the valves when the piston moves in? When it moves out?

Ask pupils to make a drawing of a force pump.

On their trial sheets let the pupils make a drawing of a pump and name the parts. With this before them have them explain the working of the pump.

Cover the model on the board and see if the pupils can set forth (1) the parts of the machine, and (2) the action of the parts.

(d) *Letters*

230 East 88 Street,
New York, June 15, 1912.

Mr. J. R. Smith,
1238 Third Avenue,
New York City.

Dear Sir,

I have read your advertisement in this morning's Herald. I am a boy of fourteen years, have attended Public School 30, and live with my parents at the above address. I can read well, write fluently, and am very good at packing, cleaning up, and arranging things.

If you wish any references you may write to Mr. R. T. Brown, 184 East 89 Street, and to my teacher, Miss D. Pickett. I hope to hear from you.

Respectfully yours,
Thomas Dunn.

Question as follows:

Read the heading of the letter.

Read the direction of the letter.

What is the body of the letter?

Where is the conclusion?

What facts do you wish to bring before Mr. Smith?

Write a social letter on the board as follows:

230 East 88 Street,
New York, June 15, 1912.

Dear Annie,

Very many thanks for your kindness in loaning me the 'Fables.' I have enjoyed your book very much and in its company have spent many a hot afternoon most pleasantly. I shall be free next week some time and hope to give myself the pleasure of calling on you and giving my thanks in person.

Sincerely yours,
J. R. Matthew.

Question as follows:

How does the salutation differ from that of a business letter?

How does the conclusion differ?

What are some other possible conclusions?

Why do you write a letter of thanks?

Write the letter to be studied on the board. Bring out its form and arrangement. Have pupils read the letter and change some of the expressions. After the oral work, cover the letter and let the pupils write one as much like the model as possible.

III. IMITATION

1. Third and fourth years

(a) *Narration*

The Hunt

Before the hunter were five grizzly bears, an old one and four cubs. "Run for the woods," growled the mother grizzly, for she knew that men carried guns. She set off to guide them to the timber-tangle on the Lower Piney. But an awful, murderous fusillade began.

"Bang!" and mother grizzly felt a deadly pang.

"Bang!" and poor little Fuzz rolled over with a scream of pain and lay still.

With a roar of hate and fury mother grizzly turned to attack the enemy. Bang! and she fell paralyzed and dying with a high shoulder shot. And the three little cubs, not knowing what to do, ran back to their mother.

The hunter seemed pleased with what he had done. But away up in the woods of Anderson's Peak that night a little lame grizzly might have been seen wandering, limping along, leaving a bloody spot each time he tried to set down his hind paw; whining and whimpering, "Mother! Mother! Oh, Mother, where are you?" For he was cold and hungry and had a pain in his foot. But there was no mother to come to him, and he dared not go where he had left her. So he wandered aimlessly about among the pines.

From *The Biography of a Grizzly*,

By Ernest Seton-Thompson.

Write the model or the greater part of it on the board. Have several pupils read it, paragraph by paragraph. Change the kind of animals in the narrative and question as follows:

Imagine that there is a deer family.
The bear growls. What will the mother deer do?
Will a little deer be called Fuzz? What will you call him?
Will a deer 'roar with pain and fury?'
Will the deer turn to attack the enemy?
What will a deer probably do?
Has the deer a 'paw' or a 'hoof?'

Present a situation similar to the model, thus:

Mother deer and four little ones
Mother heron and five little birds
A rabbit and its young one

Question the pupils in order to bring out the proper expressions to be used, the changes necessary because of the imitation, and the like. Let the pupils recite orally before they write. Leave the model before the pupils as a guide.

(b) *Description*

The Coyote

The coyote is a long, slim, sick and sorry-looking skeleton, with a gray wolf-skin stretched over it, and a tolerably bushy tail that forever sags down with a despairing expression of forsakenness and misery. He has a furtive and evil eye, and a long, sharp face, with slightly lifted lip and exposed teeth. There is a general slinking expression all over him.

The coyote is a living, breathing allegory of Want. He is always hungry. He is always poor, out of luck and friendless. The meanest creatures despise him, and even the fleas would desert him for a velocipede. He is so spiritless and cowardly that even while his exposed teeth are pretending a threat, the rest of his face is apologizing for it. And he is so homely—so scrawny, and ribby, and coarse haired, and pitiful.

From *Roughing It*, by Mark Twain

Bring out points of likeness or difference between the coyote and the animal to be described. Take, for example, the backyard cat:

Is the cat long and slim? Sorry looking?
Has it a bushy tail? How does it hang?
What kind of a face has the cat?
Describe a well-fed cat—a cat that has friends among the cooks. Tell about your own cat.

In the case of the lion or tiger, the description would proceed along similar lines, but the expressions would be very different:

Is the lion sick looking? What would you call him?
What kind of a tail has he? What else has he which the coyote does not have?
Has the lion a furtive eye? Describe his eye?
Have you seen any picture of a lion? How does he stand?

Select some topic, like 'The Backyard Cat,' 'Our Pussy,' 'The Yellow Dog,' 'The Lion,' etc. In the oral work bring out the proper expressions to be used. Leave the model before the pupils in both oral and written work.

(c) *Letters*

127 East 86 Street,
New York, March 4, 1912.

Dear Miss Jones,

Could you kindly let William go home this afternoon at 2 o'clock. His father is sick and I have to send him to the hospital.

I thank you for your courtesy and am,
Very truly yours,
Martha Young.

Have the pupils write letters of excuse with reasons other than the one given in the model letter. Question the pupils for other good reasons and write them on the board. Read some of the letters which have been received. Have the pupils give excuses for absence, invitations to different affairs. Leave the model on the board during the oral and the written work.

2. Fifth through eighth years

(a) *Narration*

Hudson's Third Voyage

Hudson was an English mariner who had made two voyages from England already in quest of India by way of the northern seas. Not disheartened by repeated failures, he now made a third attempt under the auspices of the Amsterdam directors of the Dutch East India Company. After doubling the Cape of Norway, Hudson, finding in the ice and in the discontent of his men insuperable obstacles to a further progress, turned his prow toward America.

Having reached the coast of Newfoundland, he sailed southward until he entered Delaware Bay. Then, reversing his course, he came in sight of the hills of Navesink, went in past Sandy Hook, and anchored in the lower bay of the future site of New York. He explored the neighborhood, and had converse with the Indians, which was generally of a friendly character. Still in quest of a route by water to India, in the month of September, 1609, he sailed up the great river which was one day to bear his name, as far as the site of Albany.

His appreciation of the charms of the scenery was enhanced by the delight natural to the discoverer whose eyes first beheld the noble stream and its adjacent shores, with their steep heights and verdant forests. He found the natives generally hospitable, although once he had to repel an attack. The reports of Hudson on his return—in particular, the prospect that was opened for a very lucrative trade with the Indians in furs—caused other vessels to be sent out by Amsterdam merchants on the same path.

From *The Colonial Era*, by G. P. Fisher

Present the model or the greater part of it on the board. If necessary read it. Supplement it by a reading of the account given by Bancroft or some other historian. Have the pupils find the topics and subtopics of the paragraphs as follows:

Who is the person of account in the first paragraph?
What did he attempt?
Tell about his voyage before he turned toward America.
What made him turn south?

Look through the second paragraph.
Name the three steps in his voyage.
How were the Indians?

Describe the river he discovered.
What resulted from his discovery?

Have the pupils construct an outline, as follows:

What is the main topic in the first paragraph?
What belongs to the first paragraph?

I. Third voyage of Hudson

1. Who Hudson was
2. Who sent him
3. Why he turned south

In a similar manner have the pupils outline the other paragraphs:

II. Discovery of the Hudson

1. Delaware Bay
2. Lower bay of New York
3. Hudson River

III. Results of the discovery

1. Impression made on Hudson
2. Report sent back
3. Results of report

Ask the pupils who other discoverers were. Let them construct outlines similar to the above for Columbus, Cabot, Verrazzani, De Soto, etc. Have them use their histories so as to get the facts properly grouped. Have them construct outlines or give them outlines like the following:

I. Second voyage of Cabot

1. Who Cabot was
2. Who sent him
3. Why he turned south

II. Exploration of the coast

1. Voyage to the Chesapeake
2. What he probably saw

III. Results of the voyage

1. Comparison with voyages of Columbus, Verrazzani
2. Later claims of the English

With outline and model before them let the pupils recite orally, give different introductions, vary the expressions, and then write.

(b) Description

A Dutch Burgomaster

The renowned Wouter (or Walter) Van Twiller was descended from a long line of Dutch burgomasters, who had successively dozed away their lives, and grown fat upon the bench of magistracy in Rotterdam. He was a man shut up within himself like an oyster, and rarely spoke, except in monosyllables; but then it was allowed he seldom said a foolish thing. So invincible was his gravity that he was never known to laugh or even to smile through the whole course of a long and prosperous life. Nay, if a joke were uttered in his presence, that set light-minded hearers in a roar, it was observed to throw him into a state of perplexity.

The person of this illustrious old gentleman was formed and portioned, as though it had been moulded by the hands of some cunning Dutch statuary, as a model of majesty and lordly grandeur. He was exactly five feet six inches in height, and six feet five inches in circumference. His head was a perfect sphere, and of such stupendous dimensions, that Dame Nature, with all her sex's ingenuity, would have been puzzled to construct a neck capable of supporting it; wherefore she wisely declined the attempt, and settled it firmly on the top of his backbone, just between his shoulders. His body was oblong and particularly capacious at bottom. His legs were short and sturdy in proportion to the weight they had to sustain: so that when erect he had not a little the appearance of a beer-barrel on skids. His face, that infallible index of the mind, presented a vast expanse, unfurrowed by any of those lines and angles which disfigure the human countenance with what is termed expression. Two small grey eyes twinkled feebly in the midst, like two stars of lesser magnitude in a hazy firmament, and his full-fed cheeks, which seemed to have taken toll of everything that went into his mouth, were curiously mottled and streaked with dusky red, like a spitzenberg apple.

His habits were as regular as his person. He daily took his four stated meals, appropriating exactly an hour to each. He smoked and doubted eight hours, and he slept the remaining twelve of the four-and-twenty. He had lived for years without feeling the least curiosity to know whether the sun revolved around the earth, or it around the sun. And he had watched, for at least half a century, the smoke curling from his pipe to the ceiling, without once troubling his head with any of those numerous theories by which a philosopher would have perplexed his brain, in accounting for its rising above the surrounding atmosphere.

From Washington Irving's *Knickerbocker History of New York*

Present parts of the model on the board, or give it paragraph by paragraph in its entirety. Emphasize portions of the description by reading them. Lead the pupils to see the point of view of the author and the general order of his description. Have them outline the model somewhat as follows:

- I. General impression
- II. Detailed description of appearance
- III. Detailed description of habits

Bring out the means by which the topics are amplified, thus:

Give the different expressions which bring out the idea of gravity.

What comparison is made, that is, 'like' what was he?

What is his body compared to? What other comparisons are made?

In the second paragraph what is the order of the description?

How many sentences and expressions are used to describe each part, as, 'his person,' 'his head,' etc.

How did he spend the day?

Have the pupils name different characters in the neighborhood, as, the butcher, the baker, the grocer, the floorwalker, and the like. Question them on some character along the lines outlined for the model, thus:

What is your general impression of him?
Is he jolly, sad, slow, or what?
What makes you think so?
What does he usually do when you see him?
Describe his person.
Make comparisons, that is, 'use,' 'like.'
Give another sentence on his hair.

After such questioning and discussion let the pupils recite orally on the different topics, and then write.

(c) *Exposition*

I. Growing Seedlings

Secure a wooden box at least six inches in depth, and of a convenient size to place in front of a south window, if you have such a window. Nearly fill the box with rich earth which has been finely pulverized or sifted. If possible, mix in thoroughly some well-rotted manure and a tablespoonful of prepared fertilizer. Soak your seeds for twenty-four hours, and plant them at a depth equal to four times the thickness of the seeds. Cover the seeds with dirt, press it down firmly, and sprinkle with water till the earth is thoroughly moistened to a depth of at least four inches. See that your garden is kept as nearly as possible at a temperature of 70 degrees. Add enough water day by day to keep the ground moist.

II. Bulb Culture

Few plants are easier to cultivate or give greater satisfaction, especially in winter, than those grown from bulbs. Secure a few tulip, hyacinth, or narcissus bulbs and bury them in pots of rich earth. Water them well and put them in a dark, cool place for four to six weeks, until roots appear through the opening at the bottom of the pot. Then put them in a warm, sunny place, keep them well watered, and the flowers will appear in a few weeks.

From J. E. Peabody and A. E. Hunt's
Elementary Plant Biology

Direct and question the pupils as follows:

Name the materials used.
Tell what is done, step by step.
Name some of the seeds which can be planted in the manner suggested.

Have the pupils select the name of some seed and tell how to plant it. Have them make drawings of the material and the process of planting. Let one pupil explain, and another do exactly as he is told. If possible surround the exposition with a story. Outlines like the following may be used:

My Present

I. My plan

1. I visit my aunt
2. I see her window boxes
3. My idea

II. I make a window box

1. Material
2. Planting the seeds
3. I surprise mother

III. Growth of the seeds

1. First leaves
2. How the plant grows
3. Pleasure given by the box

Our Window Box

I. Buying seeds

1. I go shopping
2. Incidents on the way
3. I get the seeds

II. Building the box

1. I get the wood
2. Making the box
3. How I got the earth

III. Planting the seeds

1. Choosing the seeds
2. Planting them
3. Waiting for the first shoot

(d) Letters

312 West 109 Street.
New York, May 5, 1912.

Messrs. Strong, Hyatt, and Co.,
1893 Third Avenue,
New York.
Gentlemen,

The chair which you sent to me came with one leg broken and with the top all scratched up. I ordered the chair last Friday afternoon. I hope that you will attend to the matter, and am,

Very truly yours,
L. Jacobson.

Write the letter on the board. Have the pupils write to the same people and complain about a table, a bookcase, etc. Have them complain about a book, a suit of clothing, and the like. Have them write a letter thanking the firm for prompt attention to the complaint, and satisfactory exchange of goods. Let them write acknowledging receipt of goods in good condition. Insist that the heading, direction and conclusion be arranged and punctuated exactly as the model. Write a social letter of invitation on the board, and have the pupils write invitations to similar affairs, as, dinner, birthday party, boat ride, etc. Restrict the pupils to some one topic.

IV. DRAMATIC IMPERSONATION

1. Third and fourth years

Aladdin and the Wonderful Lamp

One morning, as Aladdin shook off slumber, he called for somewhat of food, being sore ahungered. But, said his mother, "O my son, I have no victuals for thee inasmuch as yesterday thou atest all that was in the house. But wait patiently awhile. I have spun a trifle of yarn which I will carry to the market street and sell and buy with what it may be worth some victual for thee." "O my mother," said he, "keep your yarn and sell it not. Fetch me the lamp I brought hither that I may go vend it and with its price purchase food. I deem it will bring more money than the spinnings." So Aladdin's mother arose and fetched the lamp for her son. While so doing, she saw that it was dirty exceedingly. So she said, "O my son! Here is the lamp. But it is very foul. After we shall have

washed it and polished it it will sell better." Then, taking a handful of sand she began to rub therewith. She had only begun when appeared to her a Jinn, big and monstrous as the greatest of giants. And forthwith he cried to her, "Say what thou wantest of me. Here am I, thy slave, and slave to whosoever holdeth the lamp. Not I alone, but all the slaves of the wonderful lamp which thou holdest in hand."

Aladdin's mother quaked and terror was sore upon her when she looked at that frightful form. Her tongue being tied she could not return aught reply. When he heard the slave speaking to his parent, Aladdin hastened forwards, and, snatching the lamp from her hand, said, "O slave of the lamp, I am ahungered. It is my desire that thou fetch me somewhat to eat and let it be something toothsome beyond our means." The Jinn disappeared for an eye-twinkle and returned with a mighty fine tray and precious of price. For it was all in virginal silver and upon it stood twelve golden platters of meats manifold and dainties delicate, with bread snowier than snow. And there were two silvern cups and as many bottles of wine, clear-strained and long-stored.

From Supplemental Nights to the Book of the Thousand and One Nights, Translated by R. F. Burton

Write the model on the board. If this is not possible present most of it in this manner and fill in the rest with story. Have pupils tell the story in the first person. Each pupil takes the part of Aladdin. Direct and question as follows:

Now you are Aladdin.

Tell what took place when you awoke.

What did your mother tell you?

What was your plan? What happened then?

Let the pupils vary the expressions in the model. Leave the model before the children when they recite and when they write. Change the title to, 'My Wonderful Lamp.'

2. Fifth through eighth years

Working in a Laundry

Twice a week they had to put through hotel linen—the sheets, pillow-slips, spreads, table-cloths, and napkins. This finished, they buckled down to 'fancy starch.' It was slow work, fastidious and delicate, and Martin did not learn it

readily. 'Fancy starch' was Martin's nightmare. It was 'fancy starch' that robbed him of his hard-won minutes. He toiled at it all day. At seven in the evening they broke off to run the hotel linen through the mangle. At ten o'clock, while the hotel guests slept, the laundrymen sweated on at 'fancy starch' till midnight, till one, till two. At half-past two they knocked off.

It was exhausting work, carried on, hour after hour, at top speed. Out on the broad verandas of the hotel, men and women, in cool white, sipped iced drinks and kept their circulation down. But in the laundry the air was sizzling. The huge stove roared red hot and white hot, while the irons, moving over the damp cloth, sent up clouds of steam. The heat of these irons was different from that used by the housewives. An iron that stood the test of a wet finger was too cold and such test was useless. They went wholly by holding the irons close to their cheeks, gauging the heat by some secret mental process. When the fresh irons proved too hot, they hooked them on iron rods and dipped them into cold water. This again required a precise and subtle judgment. A fraction of a second too long in the water and the fine and silken edge of the proper heat was lost.

The sweat poured from Martin. He drank copious quantities of water, but so great was the heat of the day and of his exertions, that the water sluiced through the interstices of his flesh and out at all his pores. The manager of the hotel was lord, not only of Martin's time, but lord of his thoughts as well. He had no thoughts save for the nerve-racking, body-destroying toil. The echoing chamber of his soul was a narrow room, a conning tower, whence were directed his arm and shoulder muscles, his ten nimble fingers, and the swift moving iron along its steaming path, in broad, sweeping strokes, just so many strokes and no more, just so far with each stroke and not a fraction of an inch farther, rushing along interminable sleeves, sides, backs, and tails, and tossing the finished shirts, without rumpling, upon the receiving frame. And even as his hurrying soul tossed, it was reaching for another shirt. This went on, hour after hour, while outside all the world swooned under the overhead sun. But there was no swooning in that superheated room. The cool guests on the veranda needed clean linen.

From *Martin Eden*, by Jack London

Write the model or as much of it as possible on the board. Have pupils tell the story in the first person. Direct and question as follows:

Imagine you are a laundryman.
Tell what you have to do.
Why do you not like to iron fancy starch?
How do you spend the hours?
Describe the heat in the laundry.
How do you test the irons?

Have the pupils vary the expressions found in the model. Show how the different ideas are amplified, thus:

Why did the laundrymen not like 'fancy starch'?
What expressions in the paragraph show that?
In the second paragraph, what expressions show that it was 'sizzling hot' in the laundry?
What contrasts are made? Between the inside and the outside of the laundry? Between laundry irons and house irons?
What expressions are used to show how hard the men worked?

Develop some outline like the following:

I. I get a position

1. Applying for work
2. The laundry.
3. Work in the laundry.

II. The heat in the laundry

1. Air in the laundry
2. Testing the irons
3. People outside of the laundry

III. Hard work in the laundry

1. How I tried to keep cool
2. Continuous work all day
3. My thoughts

Write on the board different expressions for the same thing as the pupils recite orally

'buckled down to,' keep at, did nothing else than, etc.

fastidious and delicate, requiring great care, of delicate nature, etc.

exhausting, tiring, heart-breaking, wearing, etc.

kept their circulation down, did not feel the heat, managed to keep cool, etc.

air was sizzling, they could hardly stand the heat, etc.

Have pupils write on a topic similar to the one in the model, as, Working in a Factory, Working on a Farm, Working in a Department Store, etc. Let the pupils invent incidents, describe situations and make contrasts according to their conception of the work.

CHAPTER IX

LANGUAGE FORMS AND GRAMMAR — VISUAL

I. SUBJECT

1. **Usage.** *Second and third years.* Do not attempt any logical classification, nomenclature, or formal analysis. Simply lead the pupils to give sentences on familiar topics in an orderly and systematic manner.

(a) *What persons do.* Have the pupils name by occupation the different storekeepers, business men, public officials, etc., in the neighborhood. Write the words on the board. Then ask the pupils what each of the persons does. Proceed somewhat as follows:

What kind of stores are on the avenue?
What do you call the storekeepers?
What do you call the man who sells potatoes? Meat?
Name others in the neighborhood.

As the pupils give the names of the different persons, write them on the board, and add others in the following manner:

The baker _____.
The butcher _____.
The druggist _____.
A blacksmith _____.
A saleslady _____.
A carpenter _____.
A tinsmith _____.
A baker _____.
A butcher _____.
The farmer _____.

Have the pupils tell what each person does, as follows:

Look at the first person named on the board.
Think of the things he does.
Who can tell me what he does?

Wait a few moments. Then pass rapidly round the class and call on individual pupils to give their sentences. As the sentences begin to become much the same, stop the recitation for a few moments. Direct the pupils as follows:

Now what else does the baker do beside bake bread, or sell bread? Think of the different things he does.

What does he do in the morning, at noon, in the evening?

What about his flour, raisins, sugar, bills, rent, children, store, windows, holidays, etc.

Lead the pupils to enter into the life of the character presented before them on the board. Proceed in a similar manner with public officials, and the like. These will yield the following?

The policeman _____
 The letter carrier _____
 The fireman _____
 The street cleaner _____
 The conductor _____
 The motorman _____
 The soldier _____
 The sailor _____
 The janitor _____
 A policeman _____
 A letter carrier _____
 A fireman _____

Have the children base their sentences on intimate acquaintance and experience with a baker or butcher or policeman. Question them as follows:

Who was in a baker shop this morning?

Who was in a drug store?

Who knows a policeman?

Now think and tell exactly what you saw him do.

Tell what the baker did. Or what the policeman did.

Have the pupils impersonate some one of the characters, thus:

Suppose now that you are a baker. Tell what you do.

Tell what you did. What you are going to do.

Begin your sentence with 'I.'

Write a series of incompleted sentences on the board as follows:

The baker _____
 A baker _____
 I _____
 He _____
 You _____

Each of the preceding sentences deals with the 'baker.' In the last sentence, beginning with 'you,' have the children address an imaginary baker. Direct them as follows:

Come up to the front of the room, Smith, and be the baker.
Get ready a sentence which you are to tell to the baker.
Tell him what he did or did not do.
Ask him for something.

Show that in the last case, the 'you' is not spoken. Explain this as follows:

Ask him again.
In the sentence, 'Please give me a loaf of bread,' who does the giving?
As I write the sentence on the board,
Please give me a loaf of bread,
Put in what is left out.

Proceed in a similar manner with the other persons. A number of lessons may be spent on the topic according to the manner of arrangement of material and the point of attack.

Bring out the difference between any baker and some one baker as follows:

Who knows the name of his baker? Of any baker?
Tell what he does.
Tell what he did.
Tell what he did when you were in the store.

Proceed in a manner similar with that suggested in the above paragraphs. Write the incompleted sentences on the board, thus:

The baker, Mr. Smith _____.
Mr. Smith, the baker _____.
Mr. Smith _____.
I _____.
Mr. Smith, you _____.

Have the pupils go through the whole day's work of the baker, Mr. Smith, or Mr. Brown, or Mr. Jones, as the case may be. Have the pupils tell what he does or did, in the morning, at noon, at evening, in the store, on the street, in the house, in the flour mill, on the wagon, etc. Bring him into connection with such topics as flour, sugar, salt, bills, rent, Saturdays, Sundays, etc. Emphasise in each

case his actions, 'What he does' or 'What he did.' Take any sentences from the pupils even if they deal with different verb forms, as 'will,' or 'can,' so long as they show what the baker does. Deal in a similar manner with each of the persons named, as, the butcher, druggist, policeman, soldier, etc.

Write a series of incompleted sentences on the board. Base them on the answers given by the pupils in previous lessons. These sentences will run somewhat as follows:

_____ bakes bread.
 _____ sells meat.
 _____ sells medicine.
 _____ bought some flour.
 _____ paid his rent.
 _____ arrested a man.
 _____ had his uniform cleaned and pressed.
 _____ dropped the hose.
 _____ mended the fence.

Have the pupils complete the sentences in as many ways as possible. Let them first name the character, as, baker, butcher, etc. Then let them give him his name, as, Mr. Smith, etc.

Introduce plural forms after the pupils have given a series of sentences on several of the characters. Write the sentences on the board as follows:

The baker bakes bread.
 The baker sells rolls.
 The baker buys flour.
 The baker cleans the windows.
 The baker pays his rent.
 The baker goes out on Sundays.
 The baker gets up early.

Under these sentences write the following:

Bakers _____.

Have the pupils change all the singular forms in the series on the board to plural forms. Then let each pupil give two sentences, one with a singular form, and the other with a plural form, according to the model:

Bakers knead the dough.
 The baker kneads the dough.

Treat each of the other persons in the same manner. Treat the various changes possible as, I, he, etc., in a similar fashion.

Show how the word changes its position in the sentence, when a question is asked. As the pupils give sentences, write them on the board, thus:

The baker sells rolls.

The butcher trims the meat.

The carpenter fixes fences.

A baker sold me some buns.

A butcher sent my mother two pounds of steak.

Have pupils change the sentence on the board to the form of a question. Write the changed forms on the board, thus:

Does the baker sell rolls?

Does the butcher trim the meat?

Does the carpenter fix fences?

Did the baker sell some buns?

Did the butcher send my mother two pounds of steak?

Then ask the pupils to give two sentences, one in the regular form used at first, and the other in the form of a question.

Take any one person named, as, the baker, and have the pupils tell what he does, in a series. Write the series on the board and use it as a model for other activities. Insist that the pupils tell what the baker does, or did as the case may be. The sentences will run somewhat as follows:

The baker gets up in the morning. He dresses himself. He goes into the store. He sells rolls and bread. He eats some pie. The baker pays his bills. He gets dough and makes more bread and rolls. He heats the oven. The baker bakes many loaves of bread.

Select the sentences as they are given and change them to suit the sequence whenever necessary. Construct similar series for other persons, as, the butcher, the policeman, etc. Have the series related in a past form, as, The baker got up yesterday very early, etc. Change the form of the series by having the pupils read the sentences in the first person, as, I get up, etc. Emphasise the fact that each sentence is to tell what the baker does or did, or what I do, etc.

Write a connected paragraph on the blackboard, thus:

One bright morning, a little tailor sat upon his board near the window. He was sewing with all his might. He bought some sweet jelly for his bread. The tailor fetched bread out of the closet and spread some of the jelly upon it. He laid the bread near him and continued to sew. Flies soon covered his bread. He seized a strip of cloth and struck at the flies. He soon killed seven at one blow. So he cut himself a belt and wrote upon it, 'Seven at a blow.' He put the belt on and went out to seek his fortune.

Question the pupils as follows:

Who is the person mentioned in the piece?

What did he do?

He is called a 'tailor.' What else is he called? (He).

With the model on the board before the children, have them tell a similar story about a butcher, a grocer, a druggist, etc. Have them tell what he does or did. Use passages from the reader for a similar purpose. The selection given in the chapter on reading, page 68, can be used in this manner.

(b) *What persons are*

Have the pupils name the characters in the neighborhood, as the baker, the butcher, etc., the policeman, the fireman, and the like. Write a series of the characters on the board, thus:

The fireman is _____.

The policeman is _____.

The letter carrier is _____.

The baker is _____.

The butcher is _____.

The farmer is _____.

Have the pupils look at the board and read to themselves the different names. Question them as follows:

What do we call a fireman?

What do we say he is?

If it is necessary, get the pupils started right by asking them:

Is the fireman afraid or brave?

Is the fireman short or tall?

Have the pupils give different qualities by presenting different situations in which the fireman may be. Direct them as follows:

Think of the fireman in the morning before breakfast.
 Think of him after a hard day's work, after he has been in
 the smoke and the dirt, after he has been praised for
 saving a life, etc.

Indicate situations by writing topics on the board, thus:

Very early in the morning
 At breakfast
 With his companions in the fire house
 In the fire
 Before the fire
 After the fire
 At home with his children
 In general, as size, weight, strength, looks, etc.

Deal with the other topics, as, the policeman, the baker, etc., in this manner.

Write a series of sentences on the board as given by the children, thus:

The fireman is hungry.
 The fireman is tired.
 The fireman is merry.
 The fireman is agreeable.
 The fireman is dirty.
 The fireman is smoky.
 The fireman is clean.
 The fireman is angry.
 The fireman is tall.

Have the children change the person, and substitute, 'You,' and 'I.' Write a model on the board, thus:

The fireman is _____.
 A fireman is _____.
 He is _____.
 You _____.
 I _____.

In the same or a different lesson introduce the forms:

Firemen _____.
 They _____.

With the series of sentences on the fireman before them, have the children read the same sentences with changed words, as, The fireman, You, I, etc. Treat the other topics as, the baker, the butcher, etc., in the manner suggested.

Write a series of incompleted sentences on the board, thus:

_____ is brave.
_____ is very tired.
_____ is full of smoke.
_____ is full of flour.
_____ is greasy.
_____ is heavy.
_____ is jolly.
_____ is handsome.

Have the pupils read each sentence. Let them fill in any subject which is appropriate. After the sentences have been completed in different ways, have the pupils change the order of the words by asking a question. Let them give both the statement and the question, thus:

The policeman is brave.
Is the policeman brave?

With the model on the board, let the pupils deal with the baker, the butcher, the grocer, the fireman, etc. Remain on one topic as long as possible, as, the fireman in the fire house, at home, with his companions, with his children, etc., etc.

Let the pupils arrange a series of sentences on one topic. Write them on the board in a kind of descriptive paragraph, changing the sentences to suit the sequence, thus:

My friend, Mr. Smith, the baker, is a jolly person. He is big and tall. In the morning he is white with flour. He seems happy and gay. He is honest. He looks tired at night. He is very kind to his children. He is good to me.

With the model before them let the pupils give similar sentences about the butcher, the letter carrier, etc. Change the form of the sentences by having the pupils use, I, They, or You.

(c) *What happens to persons.* Create a feeling for a definite situation, as follows:

When the fireman is in the burning building, what sometimes happens to him?

When he is holding the hose, what happens at times?

When he is asleep and the alarm rings?

When he is harnessing the horses?

Write the sentences on the board, making corrections when necessary, thus:

The fireman was burned.

The fireman was wet.

The fireman was wakened.

The fireman was kicked by the horse.

Have the pupils think of different sentences for the same situation, thus:

The fireman was burned.

The fireman was hit by falling timbers.

The fireman was saved.

The fireman was hurt.

The fireman was pulled out of the building.

Treat the other characters. *e. g.* the policeman, the baker, etc., as suggested above.

Have the pupils give sentences in the manner just suggested and write them on the board. Write the following model on the board:

The fireman was burned.

Firemen _____.

He _____.

I _____.

You _____.

They _____.

Was _____?

Were _____?

Call on pupils to complete the sentences according to the model. Let each pupil complete one or two of them.

Write a series of incomplete sentences on the board as follows :

_____ was shot.
 _____ was hurt.
 _____ was wakened.
 _____ is being paid.
 _____ will be sent on post.
 _____ has been kicked by a horse.
 _____ has been burned on the arm.
 _____ was lifted on the wagon.

Call on pupils to fill in the proper persons. Have them fill in as many persons as possible for the same sentence. Question as follows :

Who else may be shot?
 Think of some other person to whom that may happen.
 Name some other person.

For example, a soldier, a sailor, a policeman, a baker, etc., may be named for the first sentence. After the series has been filled in have the pupils fill each sentence in according to the model :

He _____.
 I _____.
 You _____.
 They _____.
 Was _____?
 Were _____?

Write a series of sentences on the board as follows :

I was suddenly roused by the ringing of a bell. I jumped up and dressed myself. Other firemen were putting on their coats. I slid down the pole. My friend was hitching up the horses. He told me where the fire was. We were ordered to start at once. The engine started out. I was helped on it as it was going out into the street.

Let the children read the paragraph. Then let them read it sentence by sentence. Ask the pupils to tell (1) who the persons are, (2) what they are doing, or (3) what is happening to them. Let the pupils construct paragraphs on similar topics. as, Arresting a man, Seeking a position, Going on an errand, etc.

Give the lessons above suggested in either of two ways: (1) Take a number of persons, as, the baker, butcher, policeman, etc., and deal with one aspect of their activities in the lesson, as, what they do during the day. In another lesson take up the plural forms of the series. In still another change the persons to 'I,' 'You,' etc. A series of lessons can be given in this manner. Or (2), Take only one character, as, the baker, and deal with the different forms of sentences. Thus treat what the baker does during the day, have the pupils change the form of the sentences given, have them give different subjects, as, I, You, etc., and so on, all in a single lesson or two. In another lesson take up some other character, as, the fireman, and treat the topic in a similar manner. One or two characters can be taken in a single lesson. Considerable variety is possible according to the combinations made by the teacher.

(d) *What animals do.* Call upon the pupils to name the different animals which they know. Write the names on the board:

The dog _____.
 The cat _____.
 The horse _____.
 The sparrow _____.
 The owl _____.
 The chicken _____.
 The lion _____.
 The tiger _____.
 The wolf _____.
 The fox _____.
 The sheep _____.
 The bear _____.

Let them tell what each animal does. After the pupils have filled in the sentences, spend some time on a single animal. Call up different situations as follows:

What else does the dog do besides bark?
 What does he do when he sees you?
 What does he do when he has a bone?
 When you try to take the bone away?
 When you beat him?
 How does he go to sleep?
 How does he hide a bone?
 What does he do when he is tired?

Write the sentence on the board, thus :

The dog runs.
 The dog wags his tail.
 The dog jumps around me.
 The dog licks my hand.
 The dog runs up to me.
 The dog gnaws his bone.
 The dog crunches the bone.
 The dog chews at the bone.

Have the pupils give as many sentences for the same situation as possible. Treat each of the animals named in a similar manner.

Write a series of sentences on the board as they are given by the children. Alongside of them write the following model :

The dog wags his tail.
 Dogs _____.
 He _____.
 They _____.
 My dog, (Fido, Prince, Trot, etc.)
 I _____.
 You _____.
 Does _____?
 Do _____?

Have the pupils fill in one or more of the sentences according to the model. Treat each sentence in the series in this manner. If it seems better, give one lesson on the plurals, one on the changed form, I, He, You, etc., one on the question, and so on.

Write a series of incompleted sentences on the board as follows :

_____ barks.
 _____ mews.
 _____ flies.
 _____ hoots.
 _____ growls.
 _____ leaps.
 _____ runs.
 _____ eats meat.
 _____ drinks milk.
 _____ stretches himself.
 _____ washes himself.

Have the pupils fill in the proper names. Let them fill in as many as are possible for the same sentence. Let them sit back and think of the different animals that bark, or fly, or leap, etc. After a series has been filled in, let the pupils fill the sentences in again with different subject words, as, They, He, I, You, etc. Then have them give the same sentences in the form of a question.

In a connected series of sentences call upon the pupils to tell what some animal does in a given situation. Direct the pupils as follows:

At dinner time what do you prepare for your dog?
Where do you put the food?
What does your dog do?
How does he show he is hungry?
How does he show he is satisfied?

Write the series of sentences on the board, making slight changes to suit the sequence:

I get some soup meat and bones and put them into a dish. Fido runs up and wags his tail. He puts his nose into the dish. He eats the meat and licks up the soup. He likes to gnaw at bones. After he has eaten, he stretches himself. Then he goes round and round in a corner and lies down.

Call upon pupils to give sentences for different animals, as, the cat, the chicken, etc. Let them follow the model on the board. Hold them to what the animal does. Call up different situations for the different animals, as, A lion hunting a deer, A mouse getting some cheese, A cat catching a rat, and the like. Question the children and have them give a series of sentences on what the animal does at each stage of the activity.

(c) *What animals are.* Have the pupils name animals with which they are familiar, as, the dog, cat, horse, lion, tiger, bear, etc. Indicate different conditions and situations as follows:

Size, color, etc.
Kind, nature, disposition, etc.
At evening, in the morning, before eating, etc.
In the house, on the street, in the forest, etc.

Take any one topic, as, size, and have the pupils tell what each of the animals is, thus:

The cat is small.
 My dog is little.
 A horse is big.
 A camel is tall.
 A lion is large.

Treat the animal under each of the topics. Take any one animal, and have the pupils tell what he is with reference to the topics indicated on the board. Write down the sentences on the board as they are given, thus:

My dog is very big.
 He is dark brown.
 He is about two feet high.
 He is good natured.
 He is very tame.
 My dog, Fido, is very jolly.
 At evening, he is sleepy.
 He looks tired.
 In the morning he is frisky.
 He is always hungry.
 In the house he is quiet.

Deal with each of the animals named in much the same fashion.

Write the following model on the board:

The lion is fierce and terrible.
 Lions _____.
 He _____.
 They _____.
 You _____.
 I _____.
 Is _____?
 Are _____?

Have the pupils give each sentence in the forms suggested by the model. In the 'I' and the 'You' they can dramatise the situation. Deal with the other animals named in a similar manner. Have the pupils fill in the following sentences, and then apply the above model to each of the sentences given:

_____ is tame.
 _____ is strong and big.
 _____ is tired out.
 _____ is hungry.
 _____ is frisky.
 _____ is gentle.

Let the pupils name as many animals as possible for the given sentence.

Let the pupils describe some animal in a series of sentences. Write the sentences on the board as they are given by the pupils, thus:

The cat on our back fence is a hungry looking animal. He is thin and lean. He is black and white. He seems always to be hungry. He is very noisy at night. In the day time he is asleep. He does not seem much good to anybody.

Have the pupils describe other animals, as, My dog, The lion in the forest, The wolf in the zoo, The camel on the desert, The bird in the tree, etc. Indicate an animal in a definite situation. Have the pupils describe the size, color, nature, and peculiar characteristics of the animal. Write the series of sentences on the board, and let the pupils read them with different subjects, as, They, I, You, etc.

(f) *What happens to animals.* Lead the pupils to tell 'What happens to animals' by indicating specific situations. Write a series of suggestive topics on the board, thus:

For being naughty
 For looking into a trap
 For fighting

Write a series of sentences on the board as given by the children:

The dog was whipped.
 My dog was scolded.
 Our dog was locked up.
 He was tied to a chain.

The lion was caught.
 The lion was hurt.
 He was surprised.

The cat was beaten.
 The cat was bitten.
 He was all scratched up.

Have the pupils read off the sentences according to the following model:

They _____.
 I _____.
 We _____.
 You _____.
 Was _____?
 Were _____?

Use the same model for other incompleted sentences. Have the pupils fill in the following, and then apply the model:

_____ was caught in a trap.
 _____ was shot by the hunter.
 _____ was chased into the woods.
 _____ was tied to a chain.
 _____ was put into a cage.
 _____ was fed with meat.
 _____ was fed with bread.

As in the preceding exercises, have the children name all the animals to which the sentence applies. Question the pupils, if necessary, as follows:

Name other animals that may be caught in a trap.
 Think a little longer. Are birds caught that way?
 What little animals are so caught?

Write a series of connected sentences on the board, thus:

The kitten became very hungry. She was left all alone by her mother. She slunk out of the old box. She felt her way silently among the rubbish, smelt everything, but did not find any food. At length she reached some wooden steps. She went through an open door into a large place. She was seen by a negro who sat on a box. Kitty wandered past some rabbits. She came to a wide-barred cage in which was a fox. He crouched low. His eyes glowed. The pussy wandered to the bars, and slipped in. She was seized at once by the fox. Never in her life was she so shaken. She was frightened nearly to death. She was nearly killed before she was saved by the negro. He pulled her out of the fox's jaws.

Based on 'The Slum Cat' in Ernest Thompson Seton's *Animal Heroes*

Have the pupils read (1) What kitty did, (2) What kitty was, and (3) What happened to kitty. Have them tell a similar story about a dog, a canary, a rabbit, a mouse, etc. Let the pupils give the sentences in a series, and then pick out the sentences, according to the three divisions, What he did, What he was, and What happened to him.

(g) *What things are.* Begin with the topic, What things are. Have the pupils name things according to some definite order. Write on the board suggestive topics, as:

Tools and utensils in the home; in the school
Furniture in the home; in the school
Tools for gardening; carpentry; iron working, etc.
Means of traveling; houses; buildings
Materials for clothing, etc.
Trees, shrubs, fruits, vegetables, fibres, etc.
Meats, drinks, medicines, candies, cereals, etc.
Places, as, streets, cities, states, countries, etc.

Write down the things given for one or two of the topics, thus:

A knife is _____.
The fork is _____.
A pan is _____.
A broom is _____.
A pail is _____.
A pencil is _____.
A pen is _____.

Have the pupils give two or three sentences for each thing. Direct them in the beginning of the lesson as follows:

Tell its size, color, weight, shape, etc.
What strikes you as soon as you see it?
Why is it in the house?

Write down two or three sentences as they are given by the pupils, thus:

A knife is long and thin.
It is grey in color.
The handle is black.
It is very sharp.

Ask the pupils to take a series of three or four sentences and change the form, thus:

Knives _____.
 They _____.
 Is _____?
 Are _____?

Write a series of sentences on the board, and have the pupils guess what the object is, thus:

I am long and high. My colors are green and black.
 Inside I am yellow and red. Day and night I am busy.
 I never am tired. I am very useful to people. My best
 friends are passengers. I am a _____.

Call upon pupils to give the different names which can be used. Have them read the sentences with different subjects, as, We, It, They, or You. Make up puzzle paragraphs for other objects. Any number of lessons can be prepared by dealing with a few articles or topics in a single lesson.

(h) *What things do.* Have the pupils name a number of things under some topic, and write the names on the board, thus:

A hammer _____.
 A saw _____.
 A plane _____.
 A screwdriver _____.
 A hatchet _____.

Call upon pupils to fill in the sentences. Write them on the board as follows:

A hammer hammers nails.
 A saw cuts wood.
 A chisel smooths wood.
 A plane makes wood smooth.
 A screwdriver turns screws.
 A hatchet splits wood.

Call upon the pupils to exercise a little more imagination. Present different situations as follows:

When not looked after
 If not oiled
 If handled roughly

Write these suggestions on the board. Have the pupils deal with one thing in the different situations. Write down the sentences given by the children, thus:

A hammer hammers nails.
 It grows dull.
 It gets rusty.
 It breaks at the handle.
 It loses a piece at the corner.

Have the pupils take any one of the sentences and change the form according to the model:

Hammers _____.
 They _____.
 I _____.
 Does _____?
 Do _____?

Deal with other things in the manner outlined.

Write a series of sentences on the board as follows:

In the front of a little garden there grew a small flower. The sun shone brightly and warmly upon it. It grew hourly. A lark flew to the flower and kissed it. It sang to her and then flew up again into the blue sky. Little children passed by and looked at it. One morning it stood fully open. It showed its delicate, white, gleaming leaves. These surrounded the little yellow center. The yellow center of the flower looked like a small gold piece. The thin white leaves around gleamed silver white. The flower was a _____.

Based on 'The Daisy,' in *Fairy Tales* by Hans Andersen

Have the children read the paragraph and guess what the flower is. Have them read the sentences with different subjects, as, I, They, You or We. Ask the children to name the things mentioned in the selection. Then let the children tell what the things do. Find or make up paragraphs for other things and treat them as suggested.

(i) *What things are made of. What happens to things.* Let the pupils name objects in the manner suggested. Write the names on the board as follows:

My coat _____.
 My waist _____.
 My hat _____.
 My shoes _____.
 My stockings _____.
 My gloves _____.

Ask the pupils to tell what the object is made of. Have them give the same sentences according to the forms:

Coats _____.
 Our coats _____.
 They _____.
 I _____.
 You _____.
 What is _____?
 What are _____?
 Is _____?
 Are _____?

Write incompleted sentences on the board as follows:

_____ is made of cotton.
 _____ is made of leather.
 _____ is made of silk.
 _____ is made of wool.

Let the pupils name as many articles as they can for each of the incompleted sentences. Let them also give the same sentences in the different forms suggested by the preceding model. Treat other objects in the same way.

Let the pupils name a series of objects. Ask them to tell what happened before the object received its present shape. Question somewhat as follows:

What was it at first?
 Name the different parts.
 What was each at first?
 What happened to it?
 Then what happened to it?
 Then what was done to it?

Bring before the pupils an idea of a definite situation. Let them give the stages in the manufacture of tools, of furniture, of clothing, in the construction of houses, bridges, etc., in the preparation of food and drink, in the laying out of streets, and so on. Write a series of sentences on the board as a model, thus:

The desk is made of wood.
The tree was cut down.
It was carried to the saw mill.
It was cut up into boards.
The boards were planed.
They were cut up into small pieces.
The wood was shaped for a desk.
It was glued and screwed together.
It was sandpapered and polished.
Then it was varnished.
It was carried to the factory.
From the factory it was carried to the school.

Similar series should be given by the pupils for the construction of houses, the manufacture of different articles, and the like. Insist that the pupils tell what happened at each stage. Have each pupil give one or more sentences in the series. Similar series can be constructed for the finished articles. Let the pupils tell what happens to some object during the course of the day or week. Indicate different situations thus:

When not in use.
When in use.
In the morning, at noon, at evening.

Take some topic and have the pupils tell what happens to the object according to the suggestions on the board, thus:

The meat is bought in the butcher shop.
It is taken home and put on ice.
At noon it is roasted in the oven.
What is left is again put on ice.
In the evening it is served cold.
Next morning it is cut up for sandwiches.
The rest is made into a stew.

Let the pupils tell some portion of the history of different objects in this manner. Write a series on the board. Let the pupils tell the story with different subjects, as I, You, and if possible, They and We.

Write a series of sentences on the board as follows:

"Hold me fast," she said. The Fingers took her up carefully. She was taken on a long journey. She was pulled along through linen, cotton and wool. At evening she was laid aside. Sometimes she was placed upright in a soft bed. When she had a long train after her she became real proud. "See, I come with a train," she said. The train was long and white. The Fingers made a knot in the train. They took her on another long journey. She was used so much she grew tired. Her train was shortened so much that it was like a stubby tail. What was it?

Based on 'The Darning Needle,' in *Fairy Tales* by Hans Andersen

Ask the children to name the objects mentioned in the paragraph. Let them tell, (1) What the things did, (2) What they were, and (3) What happened to them. Have the pupils use different subjects, as, I or You. Make up paragraphs for other objects and deal with them as suggested above.

2. Usage and naming. *Fourth and fifth years.* Do not attempt any formal definition or naming. Introduce the names, 'Subject' and 'Predicate' when it is necessary to name the two parts of sentences written on the board. Separate the subject from the predicate and write the names over the parts of the sentence. Then use the terms whenever it is necessary in the course of the lesson. Have the pupils give sentences in the manner suggested in the preceding section. Write them on the board and indicate the parts of the sentences as follows:

Subject	Predicate
The letter carrier	delivers the mail.
He	goes from house.
He	puts the letter in the letter box.
He	goes home very tired.

Have the pupils change the order of the words by putting them in the form of a question, thus:

Did the letter carrier deliver the mail?
Did he come to our house?
Did he put the letter in the letter box?
Has he gone home?

Write the sentences on the board and question somewhat as follows:

Where is the subject now?
Pick out the subject in the first sentence.
Pick out the predicate.
Who can write the subject on the board?

If pupils ask what the subject is, let them look at the board. Let them read the subject as 'The letter carrier,' and tell them the subject is the person spoken about. Tell them similarly that the predicate is what we say about the person or thing. Do not attempt any formal definition, however, and do not hold pupils to any definition of terms. Simply have them pick out subjects and predicates.

Have the pupils address a letter carrier. Let one of the pupils be the letter carrier, and have other pupils ask questions. Direct them as follows:

You are waiting for a letter. Here comes the letter carrier.
What will you say to him?
What else will you ask him?

Write on the board the series of sentences given, thus:

Have you any letter for me?
Please tell me if there is any mail for me.
Is there any letter for Brown?

Simplify the sentences if necessary, as follows:

Tell me.
Is there any mail for me?

Question the pupils as follows:

Who does the telling?

Suppose you said, 'Will you tell me,' what is the subject?

Give other sentences with 'You' understood.

Treat the same topic under different heads:

What he is.

What happens to him.

Have the pupils give the same sentences with different verb forms, as, delivered, will deliver, has delivered, may have delivered, could have delivered, etc. Write the verb forms on the board and have the pupils change the sentences accordingly. Then let the children pick out the subject and predicate of each of the sentences. Show that the subject remains about the same, though often placed in different parts of the sentence. Point out that in question forms the predicate is often cut in two by a subject which is placed in the middle.

Write a series of incompleting sentences on the board thus:

In the morning ——— rings the bell.

At night ——— patrols the streets.

Very many times ——— is in danger.

——— is a jolly good fellow.

Yesterday ——— was hurt very badly.

Give me my hat.

Go home.

Did ——— have it in his store?

Was ——— at your house today?

How often has ——— called?

Take one or more series of sentences in a single lesson. Ask the pupils to supply subjects. After the pupils have supplied different subjects, select appropriate subjects and fill them in on the board. Then have the pupils read the subjects. Question them as follows:

Read the subject.

What did you supply 'In the morning,' or only 'The milkman?' Then what is the subject?

Read the predicate. Why do you leave out 'In the morning?'

What was on the board before you supplied the subject?

Deal systematically (1) with person, animals and things, (2) with direct statements, with the same statements in the form of questions, and with direct questions ('You,' understood), (3) with what persons, etc., do, what they are and what happens to them, and (4) with the different verb forms. Ask pupils to pick out only the subjects and predicates, and to supply, when necessary, subjects and predicates.

3. **Formal analysis.** *Sixth through eighth years.* Use sentences of the following types:

(a) *Regular order*

1. The books were very heavy.
2. He has written the composition.
3. The birds sang sweetly.
4. He was standing there.
5. The waves were singing a wild song.

(b) *Inverted order*

1. Were the books very heavy?
2. Has he written the composition?
3. Did the bird sing sweetly?
4. Was he standing there?
5. What are the wild waves singing?

(c) *Regular order with modifiers*

1. A small class of boys is in the room.
2. A troop of soldiers was seen in the neighborhood.
3. Many bags of corn are sold every year.
4. Many kinds of wood have been found in the southern lands.
5. A stout man, with a bundle of papers, was standing on the corner.

(d) *Inverted order with modifiers*

1. Is a small class of boys in the room?
2. Was a troop of soldiers seen in the neighborhood?
3. Are many bags of corn sold every year?
4. Have many kinds of wood been found in the southern lands?
5. Was a stout man, with a bundle of papers, standing on the corner?

(e) Idiomatic and elliptical

1. Go home.
2. John, go home.
3. Give him his hat.
4. Bring me my books.
5. We asked him a question.
6. He is like his brother.
7. There was no one like him.
8. He made me a coat.
9. They offered him a position.
10. Bless you, my little man.

Ask the pupils for sentences. Let them give sentences on one of the following topics:

Persons

What they do, did, etc.
What they are, were, etc.
What happens, is done, was done, to them, etc.

Animals

What they do, did, etc.
What they are, were, etc.
What happens, is done, was done, to them, etc.

Places

What they are, were, etc.
What they are, were, etc. (situated, placed, found, etc.).
What happens, is done, was done, to them, etc.

Things

What they are, were, etc.
What they do, did, etc.
What they are made of, used for, etc.
What happens, is done, was done, to them, etc.

Write one of the outlines on the board. For the particular persons, animals, etc., follow the general scheme suggested in the preceding sections. In addition add persons studied about in history, places in geography, etc. Direct and question as follows:

Name some things used every day.
Give some sentences telling about the things.

Write some of the sentences on the board, thus:

A basket is on the table.
Our knives are very sharp.

Ask the pupils for subject, and subject word.

Show that in the inverted sentence and in the sentence with modifiers, the subject can still be the same. Let the pupils give sentences as in the preceding lesson. Take one of the sentences. Have the pupils amplify it as follows:

What is in the basket?
What is the basket made of?
When was it on the table?
Was it near anything?

Take a series and write it on the board, thus:

A basket is on the table.
A basket of peaches is on the table.
Yesterday a beautiful basket of peaches was on the table.
A big basket of peaches, right near the plates, is on the table.

Have the pupils amplify other sentences in a similar manner. Take the first sentence and separate it into subject and predicate, thus:

Subject	Predicate
A <u>basket</u>	is on the table

Have the pupils read the other sentences and pick out the subject, and the subject word. Bring out the fact that the subject word is the same in each. Then give other sentences based on ones given by the pupils and write them on the board, thus:

A nice, large barrel of apples will come today.
Many cases of fruit are on their way from the coast.
The plate of prunes near the milk pitcher belongs to you.

Ask the pupils to pick out the subject and the subject word.

Treat the inverted sentence in a similar manner. Use the same series of sentences as above, if possible. Write them on the board, thus:

The plate is on the table.

A plate of prunes is on the table.

The plate of prunes near the milk pitcher belongs to you.

Ask the pupils to change the statements to questions. Write the changed sentences on the board as follows:

Is the plate on the table?

Is there a plate on the table?

Is there a plate of prunes on the table?

Does the plate of prunes belong to me?

Does that plate of prunes near the milk pitcher belong to me?

Direct the pupils as suggested in the preceding paragraph, and have them pick out the subject and the subject word. Then write a series of similar sentences on the board, and let the pupils deal with them in a similar manner.

Before giving sentences in which 'You' is omitted, give or get sentences in which 'You' is expressed. Direct and question as follows:

Suppose you ask the grocer for a basket of peaches.

What else will you say?

Write the sentences on the board as follows:

Please give me a basket of peaches.

Have you any peaches?

Will you kindly give me some peaches?

Are you going to send the peaches today?

Show that the subject word is 'you' in each of the sentences, thus:

Who does the giving?

What do you say when you speak to him, 'Grocer send?'

Now read it without the 'Please.'

What word is left out?

Write a series of sentences on the board, with and without the 'you,' as follows:

Are you going home?

Will you go home?

Go home, now.

Go home.

Can you get me a pencil?

Will you kindly get me a pencil?

Did you get me my pencil?

Get me my pencil.

Have the pupils read the sentences, and pick out the subject word in each case. Pass rapidly round the class and call on individual pupils. If a pupil misses, have him listen to the others, and then call on him again. In each of the lessons, deal with the topics as topics, not only of grammar, but also of oral language. Bring out that the formal analysis is an aid to written and oral composition.

CHAPTER X

GRAMMAR — VISUAL — (Concluded)

II. THE OBJECT COMPLEMENT

1. **Usage.** *Third year.* Follow the same classification of persons, animals and things given in section 1. Begin with things. Indicate whether the pupils are to deal with things in the home, in the neighborhood, etc., by writing the topic on the board, thus:

At home

Tools, as, hammer, saw, screwdriver, etc.

Utensils, as, dishes, pans, pots, glasses, etc.

Furniture, as, chairs, tables, desks, etc.

Let the pupils give sentences. Direct and question them as follows:

Who uses any tools at home?

What do you do?

How do you use them?

What do you make or fix?

How do you help your mother?

Write on the board a series of sentences as the pupils give them, thus:

My brother used a hammer last night.

He helped my mother hang pictures.

He took the hammer and hammered nails in the wall.

I held the pictures.

My mother handed up the nails.

Call upon pupils to give sentences similar to the ones on the board. Insist that they give sentences in which persons do something to one of the objects named on the board. Suggest situations as follows:

Making a window box

Cutting up wood for kindling

Washing dishes for the Sunday dinner

Arranging chairs for visitors

Write these topics on the board, and in addition, the following aids:

Who is the person who does the work?

What does he do?

What is the thing he uses, or makes, or handles, etc?

Keep the pupils to the general form, 'A person who does something to an object.' Treat other classes of objects in the manner above outlined.

Write a series of names on the board, thus:

_____ dishes.
_____ a glass.
_____ forks.
_____ cups.

Let the pupils fill in the sentences in as many ways as possible. Question as follows:

What did you do to the dishes?

What else did you do?

Then what did you do?

Who else does anything to them?

Treat other objects in a similar fashion. Have the pupils tell who does something to objects in specific situations, as in the baking of bread, the making of pudding, the care of clothing, riding in a car, planting seeds, preparing a drink and the like.

Write a paragraph on the board somewhat as follows:

We gathered some apples yesterday. We had to shake the trees for them. My brother threw sticks up at the tree. We brought home a large basketful of them. Sister peeled them. Mother cooked them. We had apple cake and apple dumplings. We can eat apple sauce and apple cake for the next week.

Ask the pupils to read the paragraph. Let them take each of the sentences and tell what was done. Then ask them for the objects to which anything was done directly. Make up paragraphs for other objects, and let the pupils make up paragraphs similar to the model.

Present situations in which persons act on persons or influence them in a specific manner, thus:

Buying from the grocer, butcher, druggist, etc.
Arresting some one, locking him up, etc.
Saving a man at a fire, reviving him, etc.
Saving a man from drowning, reviving him, etc.
Paying a call, giving a present, etc.
Receiving a visitor, offering tea or coffee, etc.

Write one or two of the topics on the board. Let the pupils tell either what they do, or what they saw the person concerned do to some other person. Direct and question as follows:

What do you do when you enter the grocery store?
After you have asked the grocer, what do you do?
When he gives you your parcel?
What do you then do? What, not thank him?

Insist that the pupils tell of a definite action which affects some person.

Write a series of incompleted sentences on the board as follows:

_____ me.
_____ you.
_____ them.
_____ us.
_____ the grocer.
_____ the baker.
_____ the fireman.

Have the pupils fill in the blanks in as many ways as possible. Let them relate personal experiences. Ask them to tell of people they know, and what such people do or did to them. Let the pupils also tell of the different objects which acted on them, as articles in the home, tools, furniture, clothing, etc. Any experiences with animals should also be included.

Deal with animals in a similar manner. Have pupils tell what they do to a dog, on the street, in the home, etc. Let them tell how

men treat horses, in the fields, in the stable, and on the street. Write a series of sentences on the board somewhat as follows:

We visited the 'zoo' yesterday. We saw many animals. The deer licked our hands and ate the candy we gave them. In the monkey house we gave the monkeys some peanuts. The keeper saw us. He took me by the arm and told me to stop. Later he fed the monkeys. They pulled him by the sleeves and ran up and down the cage.

Ask the pupils to read the paragraph, and then break it up into sentences. Let them give each sentence, tell what is done, and who it is that is acted upon. Let the pupils construct other paragraphs on similar topics, as, Our visit to the farmyard, I visit my aunt, In a factory, In a blacksmith's shop, etc. Construct other paragraphs, and let the pupils give sentences for such topics, as, At a fire, On board a ship, In a department store, At the school assembly, and the like. Hold the pupils to sentences which tell what the pupil does to others, and what they do to him.

2. Usage and naming. *Fourth and fifth years.* Have the pupils give sentences in the manner suggested in the preceding section. Arrange the sentences on the board as follows:

Subject	Predicate	
Mother	made	<u>some nice apple cake</u>
I	ate	<u>a big slice of it.</u>
My brother	had	<u>some of it (too).</u>

Question the pupils as follows:

What did mother make?

After the word 'made' what is added?

What completes the sentence, after 'make?'

Let the pupils give similar sentences and write them on the board, under the headings 'Subject' and 'Predicate.' Break up the predicate as above suggested. Let the pupils read (1) the subject, and (2) the predicate. Show that the predicate can be still further

divided, and use the term 'object complement' as you refer to it. Write the expression 'Object Complement' on the board. Do not attempt any formal definition or treatment of the expression itself. Use it simply as a necessary term to name the part of the sentence that completes the predicate. Connect the expression with 'doing' and 'action.'

3. Formal analysis. *Sixth through eighth years.* Present sentences in the following order of difficulty:

(a) *Regular order*

1. We ate the cake.
2. They saw us.
3. I told him.
4. He told me.
5. He threw down his basket.
6. They bought me some peaches.
7. Give me a basket of peaches.
8. Tell me a nice, long story.
9. We threw away the pits of the peaches.
10. I like this one very much.

(b) *Inverted order*

1. This peach I really want.
2. This basket of peaches you sold to me.
3. How many peaches did you eat?
4. How many baskets of peaches do you want?
5. What kind of peaches do you wish?
6. What did you say just then?
7. Whom are you addressing?
8. One of these baskets I shall take along, now.
9. How many persons did you see in the room?
10. Well, what do you think of it?

Select some topic and have the pupils tell of persons who do things to the objects named. Take some topic as food, for example, and question as follows:

Name some foods.

What else do you eat?

How does the food come, loose, in packages, by the pound, etc.?

Take 'apples,' or 'peaches.' Who buys them?

In the house who does anything to the peaches?

Write sentences on the board as they are given by the children, thus:

My mother buys peaches.
 My mother bought a quart of peaches.
 My mother gave me a peach.

Have the pupils amplify these sentences, change the form, etc., as follows:

When did your mother buy the peaches?
 Where did she buy them?
 How do you ask the grocer for peaches?
 What other questions do you ask?

Write the sentences on the board, making slight changes in them if necessary, thus:

Will you send me three baskets of peaches?
 These peaches my mother bought yesterday.
 How many quarts can you send me this afternoon?

Arrange the parts of the sentences on the board as follows:

Subject	Predicate	
My mother	bought (yesterday)	these <u>peaches</u>
my mother	bought (yesterday)	These <u>peaches</u>
you	can . . . afternoon	How many <u>quarts</u> ?
Etc., etc.		

Have the pupils select the object complement, and the object word.

Write a series of sentences on the board. Have the pupils select the object complement and the object word of each sentence. Writ them on the board as follows:

	Object	Complement
_____	these	<u>peaches</u>
_____	three	<u>quarts</u> of peaches
_____	How many	<u>quarts</u> ?

If the pupils have trouble with the inverted forms, give the corresponding regular form and then show how it may be inverted. Let the children give other sentences with the object complements written on the board. Let them change the complement but keep the same object word. If necessary, question as follows:

What else did your mother do to the peaches?
 Who else did anything to them?
 Think, is that all?

What else can you buy besides quarts of peaches?
 What else can you buy besides three quarts?

Insist that the pupils test their object complements and object words by the question, 'What?' as, 'What did you buy, or eat, or peel?'

III. THE PREDICATE COMPLEMENT

1. **Usage.** *Third year.* Treat the first topic as suggested in the beginning lessons on 'What persons are,' 'What animals are,' and 'What things are.' Have the pupils give series of sentences in the manner suggested. In addition, let them, wherever possible, give the sentences in the following two forms:

The fireman is merry.
The fireman is a merry man.

My dog is little.
My dog Fido, is a little dog.
My dog is a little animal.

2. **Usage and naming.** *Fourth and fifth years.* Let the pupils give sentences in the manner suggested in the preceding lessons. Arrange the sentences on the board under the following headings:

Subject.	Predicate
The fireman	is <u>merry.</u>
The fireman	is <u>a merry man.</u>
The fireman	is <u>a public official.</u>

Let the pupils read the sentences, and give (1) the subject, and (2) the predicate. Show that the predicate can be still further divide, as follows:

What words make up the predicate?

What words tell what kind of a person the fireman is?

Read the predicate complement.

Use the expression, 'Predicate Complement,' as you indicate the words to which the term refers. Write the expression on the board. Write a series of sentences on the board and ask the pupils to give (1) the subject, (2) the predicate, and (3) the predicate complement. Do not attempt any formal definition or logical treatment of the term, as such. Use it simply as a necessary part of the lesson and as a form of naming a part of the sentence. If pupils ask about the term, tell them that it is used to name the part of the sentence that completes the predicate and describes the subject.

3. Formal analysis. *Sixth through eighth years.* Present sentences with predicate complements in the following order of difficulty:

(a) *Regular order*

1. The peaches are not ripe.
2. The basket is very heavy.
3. He is like his brother.
4. She seemed very weak.
5. The peaches were considered very good.
6. It was I (he, she, they).
7. The peach is a very juicy fruit.
8. It seemed the best peach in the basket.
9. Washington was elected president.
10. He was chosen leader of the continental army.

(b) *Inverted order*

1. Are those peaches ripe?
2. Blue was the sky.
3. How like his brother he is!
4. Pale, she looked, and weak.

5. Very good were those peaches considered by the grocer.
6. I it was.
7. Most juicy and ripe is that peach.
8. The best peach in the basket it seemed.
9. When was Washington elected president?
10. Leader of the continental army was he chosen.

Show the pupils how the predicate complement remains the same when the sentence is inverted. Analyse a sentence in the regular order, and under it analyse the same sentence in inverted order, thus:

Subject	Predicate
That peach	is <u>most juicy</u> and <u>ripe</u> .
that peach	is Most <u>juicy</u> and <u>ripe</u> .
Etc., etc.	

Write a series of sentences in regular order on the board. Have the pupils read each of the sentences and pick out subject, predicate, and predicate complement. Let them read the predicate complement and then select the predicate word. After the sentences in the series have been analysed, let the pupils read the sentences in inverted order. Write the series on the board in inverted order, and have the pupils again analyse the sentences as suggested.

Write the predicate complements and the predicate words on the board as they are selected by the pupils, thus:

	Predicate Complement
_____	most <u>juicy</u> and <u>ripe</u>
_____	<u>juicy</u>
_____	<u>ripe</u>
_____	very <u>heavy</u>
_____	<u>heavy</u>

Ask the pupils for other sentences with the given predicate complements. If necessary question as follows:

What other fruit is juicy and ripe?

What else beside fruit is juicy?

What other words can you use besides 'is' or 'was'?

Read the same sentence in inverted form.

IV. VERB FORMS

1. **Usage.** *Second and third years.* Make use of the lessons suggested at the beginning of the chapter, on the topics, What persons, animals, things, do, are, etc. Give the lessons in exactly the same manner. Then ask the pupils to read the series of sentences on the board with the addition of 'Yesterday,' 'Last week,' 'To-morrow,' etc. Use the lessons on 'What persons, etc., are,' for the forms of the verb 'is,' as, is, are, was, were, shall be, will be.

Give lessons to bring out the forms of such verbs as, see, bring, go, come, throw, etc. Write such topics on the board as:

A picnic in the park

A tramp through the woods

A visit to the Zoo

In the assembly room

At a fire

In the museum

Hold the pupils to some one topic. Let each pupil then tell what he saw, what he brought, who came, what he threw away, etc. Have the pupils give the same sentences with 'We,' 'They,' etc., as the persons. Suggest situations, as, At the beginning, entrance, school, home, etc., On the road, street, stairs, etc. In a similar manner let the pupils tell what they had, what they broke, or ate, or wrote, or tore, etc. Ask for sentences with 'I,' or 'We,' or 'They,' etc. Write a series of sentences on the board as given by the pupils, and let them change the time as, 'To-morrow,' 'Yesterday,' etc.

2. **Usage and naming.** *Fourth and fifth years.* Have the pupils give sentences in the manner just suggested. Write the time on the board as follows:

Now, or Present	I <u>am going</u> home.
Yesterday, or Past	I <u>went</u> home.
Tomorrow, or Future	I <u>shall go</u> home.

Write a series of sentences on the board as given by the pupils, thus:

We started from the school at 9 o'clock. We went through Third avenue. We saw a policeman on the corner. A little further on we came to the fire house. There we saw the men cleaning the engines. Our teacher went with us. We brought along our lunch. Some boys brought their bats, balls and gloves. We were told not to throw anything into the streets. Some friends came with us.

Let the pupils read the sentences. Ask them to read each sentence and change the form according to the model on the board. Let them give the present, past and future forms of the verbs. Have them read the sentences with different subjects, as 'They,' 'I,' etc.

Have the pupils give sentences with object complements as suggested in the preceding paragraphs. Write a series of the sentences on the board, thus:

We gathered apples yesterday. Mother cooked them. She made some nice apple cake. We ate some of the cake this morning. To-morrow we shall have apple fritters.

Let the pupils read the sentences and make the object the subject. Compare the changed verb forms as follows:

<i>Active</i>	<i>Passive</i>
gathered	were gathered
were gathering	were gathered
cooked	were cooked
was cooking	was cooked
made	was made
was making	was made
ate	was eaten

Let the pupils give other sentences and have them changed in a similar manner. Let the pupils change the time to present, past, or future and give both active and passive forms. Ask them to change the subjects to 'I,' 'They,' etc.

Study the verbs under the following heads:

	Active	Passive
<i>Present</i>	I <u>eat</u> the apple.	It <u>is eaten</u> by me.
<i>Past</i>	I <u>ate</u> the apple.	It <u>was eaten</u> by me.
<i>Future</i>	I <u>shall eat</u> the apple.	It <u>will be eaten</u> by me.

Write this model on the board. Then ask the pupils to treat the verbs in the sentences as 'eat,' is treated in the model. Change the subjects to 'He,' 'They,' etc. Deal in a similar manner with the verbs, do, see, come, go, read, write, sing, bring, think, break, catch, drive, throw, know, lie, lay, run, tear, etc. Have the pupils first give sentences which deal with suggested situations, let them change the verb forms in the manner suggested, and then have them formally study the verb according to the model on the board. Treat the verb forms in a series of lessons, using several verbs in each lesson.

3. Formal study and analysis. *Sixth through eighth years.*

Let the pupils give sentences as suggested in the preceding section. Ask them to read the sentences and change the time, or the voice, or the subjects. Carry the study further. Let the pupils change the form of each of the verbs according to the following model:

	Active	Passive
<i>Present</i>	I <u>eat</u> the apple.	The apple <u>is eaten</u> by me.
<i>Past</i>	I <u>ate</u> the apple.	It <u>was eaten</u> by me.
<i>Future</i>	I <u>shall eat</u> the apple.	It <u>will be eaten</u> by me.
<i>Present perfect</i>	I <u>have eaten</u> the apple.	It <u>has been eaten</u> by me.
<i>Past perfect</i>	I <u>had eaten</u> it.	It <u>had been eaten</u> by me.
<i>Future perfect</i>	I <u>shall have eaten</u> it.	It <u>will have been eaten</u> .

Ask the pupils to carry through each verb in the first person, second person and third person, in both singular and plural. Use only one person at a time, as 'I,' or 'They,' etc.

In the analysis of sentences, let the pupils pick out the predicate and the predicate verb. Let the pupils give sentences about persons, animals or things, as suggested in the preceding sections. Show how the verb may be changed, with the rest of the sentence remaining the same. Write down sentences as given by the pupils, thus:

We threw sticks at the apples on the trees.
 Many apples fell to the ground.
 We took home a large basketful of them.
 Mother cooked some of them.

Question the pupils as follows:

Ask a question beginning with 'Why.'
 Ask the same question and begin it with 'May.'
 Begin the sentence with 'Who could have.'
 Keep to the words of the first sentence.

Write the sentences on the board, thus:

Why did you throw sticks at the apple tree?
 May we throw some sticks at the apple tree?
 Who could have thrown sticks at the apple tree?

Analyse the sentences according to the following model:

Subject	Predicate	
We	<u>threw</u> attrees	sticks
You	<u>did throw</u> attrees	sticks
We	<u>may throw</u> at trees	some sticks

Give a number of sentences like these and have the pupils analyse them, and pick out the predicate and the predicate verb. Let them change the sentences, and analyse them in the same way. Let them do the same thing with the voice changed, and with different tense forms. Treat the verb 'is' in a similar manner. Let the pupils give sentences on what persons, etc., are. Then let them change the form of the verb in the sentence according to the model on the board, which gives the six tenses. Have them analyse the sentences and pick out the predicate verb as suggested above.

V. PHRASE FORMS

1. **The prepositional phrase.** (a) *Usage and naming. Fourth and fifth years.* Develop sentences in the manner outlined at the beginning of the chapter. Deal systematically with persons, animals and things. Let the pupils give sentences, and write them on the board as follows:

The baker bakes bread.
 The baker sells rolls.
 He cleans the window.
 He pays his rent.

Let the pupils further amplify these sentences. Direct them as follows:

When does the baker bake his bread?
 Where does he bake it?
 With what does he bake it?
 By whom is he helped?
 How long does he bake it?

Bring out the time, the place, etc., and if necessary suggest the form of the answer by asking, 'At what time,' or 'In what place, etc.' Each topic can be amplified in this manner.

After several lessons begin to use the term 'Phrase.' Write sentences on the board as given by the children, thus:

	Phrase
The baker bakes bread in the night.	in night
He bakes it under his store.	under the store
He bakes it by means of a large oven.	by oven

Ask the pupils to read the sentences and give the phrases in them. Write some phrases on the board as follows:

_____ in the night.
 _____ during the day.
 In the night _____
 During the day _____

Ask the pupils to complete the sentences according to 'What persons do, etc.,' 'What animals do, etc.,' and 'What things do, etc.' Direct the class if necessary as follows:

Name some persons in the neighborhood.

Name some public officials.

Tell what each one does when on duty in the night.

What does he do during the day?

What else does he do, at home, in the store, on the street?

Give special lessons on the phrase forms introduced by, in-into, in-on-at, off-from, between-among. Write a model on the board as follows:

The baker throws the dough into the pan.

He turns the dough round in the pan.

Suggest different situations and have the pupils use the proper phrase, thus:

Salt, sugar, eggs, milk, flour, raisins, etc.

Rolls, bread, cake, pie, money, etc.

Knives, shovels, pans, plates, etc.

If necessary question as follows:

Where did he throw the salt?

Where did he break the eggs?

Where did the eggs lie?

Where was the milk?

Where did he pour the milk?

Other persons as, the butcher, the grocer, the policeman, the fireman, etc., will afford situations of a similar character.

For the use of 'off-from,' write the following on the board:

What things did you take, or get, or buy, etc.?

From what person?

What things did you take?

Off what object?

Let the pupils deal systematically with different persons and things. For the use of 'in-at-on,' let the pupils complete the following:

I live at _____.

I live on _____.

I reside in _____ city.

Call on pupils to tell where other persons live, as, the baker, etc. Ask the pupils to tell what two streets they live, between what two streets the baker, etc., has his store, and so on. Have the children use 'among' in connection with many articles in the store, the home, the school, etc.

(b) *Formal study and analysis. Sixth through eighth years.*

Let the pupils deal with phrases as indicated. Take some of the sentences and write them on the board, thus:

The rolls were in the tray.
I took the rolls off the table.

Indicate similar processes by taking books off the desk, etc. Direct and question the pupils as follows:

Where are the books now?
Where are they now? And now?

Write the corresponding relations on the board as follows:

The books are	{	on	the desk.
		under	
		above	
		over	
		near	
		in	
		beside	

Suggest situations somewhat as follows:

The baker put the rolls _____ counter.
He threw some dough _____ dish.
He sent three loaves to _____.
He sent some cake _____.

Ask the pupils to fill in the sentences. Deal with other persons and things in this manner.

Analyse some of the phrases as follows:

Preposition	Object
under	the <u>counter</u> .
into	the <u>dish</u>
to	my <u>mother</u>
in	a large, white <u>box</u>

Ask the pupils to pick out the phrases in the sentences on the board. Let them pick out the phrases in paragraphs in their reading lesson. Let them read the phrase, the preposition, and the object word. To find the object or the object word, have the pupils ask 'Under what?' or 'Into what?' etc. Let the pupils give phrases according to the following models:

The man, with ——— is a baker.
 The baker in ——— is Mr. Jones.
 The cake on ——— belongs to me.
 The book ——— is mine.
 He went to ———.
 He bought some milk from ———.
 Your book is in ———.
 We are now going ———.

After the phrases have been filled in, let the pupils analyse them as above.

2. The infinitive phrase. (a) *Usage and naming. Fourth and fifth years.* Let the pupils amplify sentences which deal with persons, animals and things in the manner indicated in the first section of the chapter. Select a topic and have the pupils give sentences. Write some of the best sentences on the board, thus:

The firemen slid down the poles.
 They rode to the fire.
 They used four lines of hose.
 They carried ladders to the roof

Ask the pupils to tell 'Why' the different things were done. Write some of the sentences on the board, thus:

The firemen slid down the poles to save time.

They slid down to get down as quickly as possible.

To stop the fire from spreading, they used four lines of hose.

They used four lines of hose to save the rear wall.

Let the pupils explain the 'Why?' of different activities and processes. Let them tell, step by step, how different things are made, in the home, in the factory, and in the school. Let them tell why the heroes in story and history acted as they did. Upon the basis of what has been given by the pupils, let them use the phrase in other ways. Write sentences like the following on the board:

The firemen tried to _____.

They wanted to _____.

They were anxious to _____.

They were willing to _____.

The firemen made a brave attempt to _____.

Let the pupils fill in each of the sentences in as many ways as possible. Give the lessons in either of two ways: (1) by taking one kind of phrase, *e. g.*, the 'Why?' form and dealing with several persons or activities, or (2) by taking all kinds of phrases and dealing with only one person or activity in the lesson.

Name the phrases as follows:

The firemen tried to save the
rear wall from burning.

They wanted to put out the fire.

Phrase

to . . . burning

to . . . fire.

Ask the pupils to give the phrases in other sentences according to the model. Let them read the sentence, and then tell what the infinitive phrase is. Write incompleted sentences on the board for the pupils to fill in, thus:

_____ to save time.

_____ to save himself from being hurt.

To save time _____.

To save himself from being hurt _____.

Let the pupils give the sentence and then pick out the phrase.

(b) *Formal study and analysis. Sixth through eighth years.* Give separate lessons on the infinitive used as (1) object, (2) adjective modifier, (3) adverbial modifier, etc. Correlate with the history and the literature of the grade. Let the pupils tell what the different explorers, statesmen, inventors, writers, business men, etc., tried, or attempted, or desired, or wanted, etc. Write incompleting sentences on the board as follows:

_____ tried to _____.
 _____ wanted to _____.
 _____ knew how to _____.
 _____ asked him to _____.
 _____ told him to _____.

Take some of the sentences given by the pupils and analyse the phrases as follows:

Principal word	Object
to cross	the Delaware
to find	a northwest passage to India.

Let the pupils analyse phrases in a similar manner. Let them pick out phrases from sentences on the board, from passages in the reader or history, etc. Call for the infinitive object noun phrase, or the infinitive adjective phrase, etc., as the case may be. In other lessons present the adjective phrase, the adverbial phrase, etc. Connect the phrases with such expressions as 'attempt to,' 'ambitions to,' etc., 'anxious to,' 'sorry to,' etc. Let the pupils tell why the persons spoken about acted as they did. Write the sentences on the board as given by the pupils, and have them analyse as above.

3. The participial phrase. (a) *Usage and naming. Fourth and fifth years.* Base the lessons on sentences which tell 'What happens to persons, animals, things, etc.,' and 'What persons, animals, things, do, etc.' Suggest some topic or activity, as, The baker, Putting out a fire, etc. Write incompleting forms on the board as follows:

While ———, the baker ———.
 While ———, he ———.
 Having ———, he ———.
 Having ———, ———.

Write sentences on the board as given by the pupils. Let them read the sentences, and pick out the phrase in much the same manner as that outlined in the above section. Keep to the simpler forms.

(b) *Formal study and analysis. Sixth through eighth years.* Let the pupils give sentences in the manner outlined above. Correlate with the history and literature of the grade. Have them give the sentence, and analyse the phrase according to the following model:

Principal word	Object
putting	the <u>doughnuts</u> over the fire.
having brought	the <u>bread</u>

Ask for the verb from which the participial comes, as 'Putting, from to put,' 'Having brought, from to bring,' etc.

VI. SENTENCE FORMS

1. Simple and compound sentences. In the lower grades, as the children ramble along in their oral work, giving sentence after sentence connected by 'and,' write some of their sentences on the board. Strike out the 'ands' and make simple sentences. Substitute capital and period for each unnecessary 'and.' In the upper grades this is also necessary at times. In the fourth and fifth years give exercises in the amplification of sentences. Base the lesson on a specific activity or situation. Write sentences on the board as follows:

The baker baked some bread and his man ———.
 He bakes bread and we ———.
 We bought some rolls, but we ———.
 The cake is good, but the pie ———.
 Rolls are good, but we ———.
 Bread costs five cents, but cake ———.

Ask the pupils to fill the sentences in, in as many ways as possible. Write a series of sentences on the board, thus:

During the night the baker makes bread, cakes and rolls. In the morning he sells them. I like bread. My brother likes rolls. Bread is good. Rolls are better because they are baked through and through. Pie is good. Cake is better because it has not so much crust. We buy bread and rolls. On Sunday we get some cake.

Let the pupils connect the proper sentences with 'and' or 'but.' Construct similar series on such topics as, In the butcher shop, In the grocer's, Arresting a man, Putting out a fire, Selling goods, Settling in the new world, Making a dam, Planting a seed, etc.

In the fourth and fifth years, have the pupils change a sentence of any type into a question, or a command. Use the terms, Statement or declarative sentence, Question or interrogative sentence, Command or imperative sentence. Write these expressions on the board. Write a model on the board as follows:

<i>Statement or declarative sentence:</i>	The baker bakes bread.
<i>Question or interrogative sentence:</i>	What does the baker make?
<i>Command or imperative sentence:</i>	Send me three loaves of bread to-day.

Let the pupils give sentences like the above on specified topics.

2. The complex sentence. In the lower grades let the pupils amplify the type sentences. Select some topic as suggested in the preceding paragraphs, and let the pupils give sentences according to the type forms. Write these sentences on the board with the additions indicated, thus:

The baker adds water and milk to the flour because _____.
 We buy rolls because _____.
 Bread is cheaper than cake, because _____.

Ask the pupils to complete the sentences in as many ways as possible. Give lessons with sentences of the following type:

When the fat began to boil, the baker _____.
 When the dough has been shaped, the baker _____.
 The baker, who _____ is a very good-natured man.
 Mr. Smith, who _____ is our baker.

Base sentences on situations like those given in the preceding paragraphs. Make use of other conjunctions, as, before, while, although, after, until, etc. In the higher grades let the pupils give sentences as indicated above. In addition, have them read each sentence, and give the principal clause and the dependent. Introduce the terms, Complex sentence, Adjective clause, and Adverbial clause. Let the pupils pick out the clauses in selections in the reader or history. Treat the noun clause in the same fashion.

3. Formal analysis. Do not attempt the analysis of the sentence until the pupils are familiar with analysis of the parts as outlined in the preceding sections. Then spend considerable time on the different variations of the simple sentence before passing to the compound or complex forms. Let the pupils analyse according to some such model as the following:

On a cold and stormy night, George Washington, commander of the American forces, tried to cross the frozen Delaware.

S. D. S.

S. N. George Washington	P. V. tried	O. C. to . . . Delaware
commander	on night	
of forces	a	
the	cold	
American	stormy	
In. O. N. Ph. to cross the frozen Delaware.		
In. V. to cross	O. C. Delaware	
	the	
	frozen	

VII. NOUNS AND PRONOUN

1. Naming. In the upper grades the pupils should be familiar with different persons, places and things as named in the type sentences. After the pupils have given sentences telling what persons, etc., do, are, etc., begin to refer to the words as name words or

nouns. Ask the pupils to give sentences with different name words or nouns as subjects. In the analysis of sentences, refer to the subject noun or pronoun. Ask the pupils to pick out subject nouns, or object nouns. In the series of sentences on the board, underline the nouns or pronouns in the sentences. Make a list of them under the heading, Noun or Pronoun. Ask the pupils for other nouns and have them tell whether the nouns given are names of persons, things, etc.

2. Person and number. In having the pupils change the form of type sentences, ask them to use the first person, or 'I,' the third person, or 'He,' etc. Do this in the higher grades. Write a series of sentences on the board as follows:

The baker awoke early in the morning. He put on his white apron and started to carry some rolls upstairs when a customer called him. The customer asked him for some bread. The baker put his rolls down and handed his customer a loaf of bread. He took the money and put it in his cash drawer.

Ask the pupils to read the sentences with the first person, or 'I.' Direct and question as follows:

Read the sentences with the first person or 'I.'
I want the class to note all the changes.
What words go with 'I' all through?
Who can write the different forms of 'I' as used?

Let the pupils use the second person or 'You.' Change to the plural forms. Ask the pupils to tell the story in the plural, or with more than one baker. Then let them use the first person or 'We,' and question as above. Do not attempt to cover the forms with any mystery or seek to entangle the pupils with formal definitions. Let them use the different forms as they usually do in conversation and written work. Let the pupils construct similar paragraphs, and have them change the form of the nouns and pronouns as indicated.

3. Gender and case. Use a paragraph like the one above, and let the pupils read it with 'She,' or the feminine gender. Compare the forms, 'I-my-me,' 'He-his-him,' etc., as used in the sen-

tences. Ask the pupils what part of the sentence the 'I' and the 'me,' or the 'he,' and the 'him' are used as. Connect the terms, 'subject, or nominative case, I,' and 'object, or objective case, me.' Let the pupils give type sentences with object complements. Have them use different pronouns as object words. Then ask them to use the same pronouns as subject words. If possible give these lessons with lessons on the active and passive forms of the irregular verbs.

VIII. ARTICLE, ADJECTIVE AND ADVERB

1. Article and Adjective. In the higher grades ask the pupils to tell more about the persons, etc., given in the type sentences. Question as follows:

You say that the fireman played the hose.
What kind of a fireman was he?
What else can you say about him?
Tell about his size, appearance, manner, expression, etc.

Write a series of type sentences on the board and have the pupils amplify the different subjects or objects. In lessons on 'What persons, animals and things are,' ask the pupils to give as many qualities or characteristics as possible. Begin to use the term, 'Adjective.' Ask the pupils to give other 'adjectives.' Let them tell what words in the type sentences are used as adjectives. Ask them to use adjective modifiers as predicate complements, and the reverse. Refer to the words, 'The, an, or, a,' simply as 'Articles.'

Use the lessons on 'What things, etc., are,' as the basis for the use of the comparative. Write the sentences on the board. Question as follows:

The lion is terrible.
What animal do you think is more terrible?
What animal is less terrible?
Of the two animals, which is more terrible?
Name two other animals. What are they both?
Which of the two is bigger?

Let the pupils tell what they like. Ask them why they prefer one to the other. Present two objects in the room and ask the pupils to express a choice, with the reason. Question as follows:

Of these two books, which do you prefer?

Why do you like this one better than that?

Which of the two is prettier?

Which is heavier? Better? More attractive?

Compare pupils, object, studies, two by two, and ask the pupils to judge which of the two is bigger, or smaller, or better, or worse, or cleaner, or heavier, etc. Write the two forms of the adjective on the board, thus:

Positive

big
small
good
bad
clean
heavy
terrible

Comparative

bigger
smaller
better
worse
cleaner
heavier
more terrible

After a few lessons on the comparative form, let the pupils continue with the comparison and give the 'Superlative or highest.'

2. The adverb. In lessons on the type forms, ask the pupils to amplify the verb. Write the sentences on the board as suggested in the beginning of the chapter. Question as follows:

How does your dog run up?

How does he growl?

How does he lie down?

Write the sentences on the board with the amplifications. Ask the pupils to read each sentence and pick out the adverbs. Use the term, 'Adverb,' in asking the pupils to give other adverbs. Let the pupils read passages in the reader and pick out the adverbs. Let them change the adverbs, give different ones, add adverbs, etc.

Treat comparison as in the case of the adjective. After a series of sentences with adverbs have been given by the pupils, write them on the board and question as follows:

What animal runs more quickly?

Name some other animal. Which of the three runs most quickly?

Which animal runs most slowly?

How else can they run?

Let the pupils pick out adverbs and give the comparative and superlative degrees. Use sentences on the board and passages from the reader for this purpose.

IX. GENERAL SUGGESTIONS.

Before giving a lesson on the analysis of sentences, or on the parts of speech, look over the topics and the lessons outlined in the first twenty pages of Chapter IX. Get as much material as possible from the pupils. Base the lesson on some definite topics which are close to the children's experiences and interests. Use the type sentences in the manner outlined, and then have the pupils amplify these sentences according to the aim of the lesson. After the pupils are familiar with persons, animals, places and things, and with what they do, etc., develop changes and modifications. Introduce names, as, conjunctions, etc., when it is necessary to call attention to some particular language form.

CHAPTER XI

GEOGRAPHY — VISUAL

I. HUMAN ACTIVITIES AND THEIR PRODUCTS

1. **The neighborhood.** *Third and fourth years.* Lead the pupils to study in a systematic manner the activities of the neighborhood. Ask them to tell what stores they deal with. Direct and question as follows:

How many go errands for their mothers?
What are you sent for?
Where do you go for it?
What do you call the stores?
Yes. What other stores sell bread?
Where do you buy meat? Where else?
What other things do you eat?
What did you have for breakfast? For dinner?

As the children give the names, write them on the board as follows:

<u>Where we go</u>	<u>What we get there</u>
Bakery	Bread, rolls, cake, pie, etc.
Dairy	Milk, eggs, bread, cheese, butter, crackers, etc.
Butcher store	Meat, lard, fat, etc.
Delicatessen	Bread, sausage, cooked meat, canned goods, etc.
Dry grocery	Bread, milk, cheese, butter, eggs, canned goods, coffee, tea, cocoa, crackers, etc.

Lead the children to tell how the food is sold, how it is prepared, how it keeps, etc. Write the following topics on the board:

How is it sold?
How much does it cost?
How is it prepared for eating?
Does it keep? How long does it keep?

Let the pupils treat each of the foods under these headings. Ask the pupils to name the different kinds of bread, the kinds of meat, the names of the foods which are put up in cans, and so on.

In another lesson take up the topics of clothing and shelter. Question the pupils as follows:

Where do you buy clothing?
 What? All your clothing? Your shoes, too?
 Where do you get hats? Waists?

Write down the names as given by the children, thus:

<u>Where we go</u>	<u>What we get there</u>
Clothing store	Suits, hats, waists, etc.
Shoe store	Shoe, rubbers
Hat store	Hats
Millinery store	Hats, trimmings
Department store	Everything

In connection with shelter, question as follows:

What do we call the man who builds the house?
 What kind of work is done in the building of a house?
 Who lays the floors? Who puts in doors and windows?
 Who lays the brick? The foundations? The roof?
 Who puts in the pipes? The wires?
 Suppose a pipe leaks, whom do you call?
 Who fixes a broken pane of glass?

Write down the names somewhat as follows:

<u>Workman</u>	<u>What he does</u>
Builder	Builds houses
Carpenter	Works in wood
Cabinet maker	Works in fine woods
Bricklayer	Lays bricks
Mason	Cuts stone
Plumber	Fixes pipes, etc.

Have the pupils tell what material is used, how it is made up, what tools are used, how they are used, the durability of the material, etc. One or more lessons can be given according to the detail presented.

Take up the question of transportation. Question as follows:

How did you get to the store?
 Do you always walk to the store?
 How does the grocer get his goods?
 How do they get to the market? How else?

Write the names on the board as follows:

Name	Power	Place
Wagon	Horse	Land
Railroad	Steam, electricity	Land
Automobile	Electricity, gasoline	Land
Boat	Steam	Water
Car	Steam, electricity	Land

Ask the pupils to trace the travels of some article and tell how it reaches the store, as, by boat over the ocean, through canal, lake, river, etc., or by rail over road, or street, or avenue, etc. Have them name the different stopping places, as, field, city, warehouse, factory, store, etc.

Let the pupils read of the foods eaten by other people. Tell them stories of how other people live. Show them pictures of strange people. Draw pictures of utensils other than those used at home. Compare the different ways of preparing foods. Write a series of names on the board, thus:

Wheat	Rye	Potatoes	Rice	Tapioca	Sago
Meat	Fish	Cheese	Eggs	Chicken	Milk
Milk	Coffee	Tea	Wine	Beer	Whiskey

Show how other people use rye, or rice, or tapioca, instead of the wheat that we use in our bread. Compare the meat used here with the fish used in China, or the cheese and eggs used in other countries. Compare the foods used in the hot lands with the foods used by the Eskimos and the Laplanders. Read interesting accounts, tell stories and let the pupils read of the customs and manners of other nations and races. In the same way present pictures and have the pupils read of the clothing worn by other races. Compare the means of transportation with that in other lands. The number of lessons given will depend upon the material which the teacher is able to collect.

Take some article of food, or clothing, or shelter, and trace it to its origin in the raw product. Show the different stages in its manufacture. Question somewhat as follows:

What is your waist made of?

What was it before it was made into a waist? In the factory?

What is the cloth made of?

How are the threads built up? Pull one apart.

What is the plant called?

Where does it grow?

Question in a similar manner on the coat, shoes, tie, hat, desk, paper, pen, etc. Draw a sketch on the board as follows:



Plant



Cotton



Thread



Cotton goods

If possible, show the raw material, different stages of its manufacture, and the finished product. Manufacturers will often supply these. Deal in this manner with other topics, as, wool, silk, linen, leather.

Write the stages of growth and manufacture on the board, thus:

Material	Source	Raw prod.	Man. prod.	Man. articles
cotton	plant	cotton	cotton goods	waists, stockings, shirts, thread, bags, etc.
wool	sheep	wool	cloth	coats, gloves, underwear, etc.
leather	silkworm	silk	silk	ties, waists, gloves, etc.
silk	cattle	hides	leather	shoes, harness, gloves, etc.

Call upon the children to name as many manufactured articles as possible. Repeat the development outlined in the above paragraphs for foods, building materials, etc. Begin with the foods usually eaten by the children, as, bread, cake, meat, etc. Question pupils individually as suggested. Sketch the passage of the food from its source to its present form. Outline the different stages as just given.

After the pupils have taken up the different products in this manner, present the industries which are supported by the products. Take up some topic, as, Cotton growing. Show pictures of cotton fields. If possible, have specimens of cotton and the cotton plant. Let the pupils read of interesting stories connected with the planting and raising of cotton. Make a sketch of the cotton plant on the board. Tell how cotton is raised, what climate is needed, what soil, etc. Write on the board the number of people employed in the raising of cotton, the annual yield, the money which the cotton is worth, the export of cotton, and the part of the country which produces cotton. In this manner present other topics, as, Raising wheat, Growing corn, Raising cattle, Preparing beef, Mining coal, etc. Deal in a systematic manner with the different occupations, as, agriculture grazing, mining, manufacturing, etc.

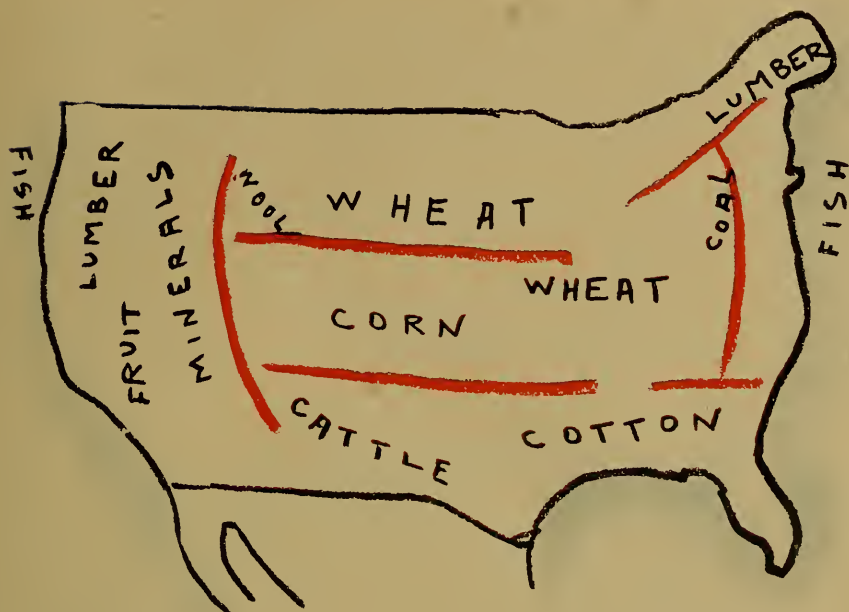
2. The United States and other countries. *Fifth and sixth years.* Connect the lessons with the pupils' home and neighborhood life. Direct and question the pupils as follows:

What do you eat almost every day?

What else do you eat?

Name some other foods.

Write the names of the foods on the board as given by the children. Leave out those of less account. Rapidly sketch a map on the board as follows:



Fill in the areas which produce the chief foods. Name the foods. Question the pupils again. Let them tell what their clothing is made of, what material is used in the construction of the school building, etc. Fill in the map with the names and areas of the products mentioned by the children.

Classify the different products according to the following scheme:

<u>Food</u>	<u>Clothing</u>	<u>Shelter</u>
Wheat	Cotton	Coal
Corn	Wool	Iron
Rice	Leather	Lumber
Sugar		Copper
Beef		
Pork		
Mutton		
Salt		

Ask the pupils to classify the products under the following heads:

Vegetable

Animal

Mineral

Let them arrange the general heads of Food, Clothing, Shelter, and tell which of the foods is vegetable, which animal, and which mineral. Ask them to do the same with the other products.

Spend some time on the formal study of the products and the areas which yield the products. Draw a blank map on the board. Point to an area, and have pupils tell what animal product, or what vegetable product, etc., is raised there. Name some product and ask pupils to point to the part of the map which indicates where the food is raised. Name some part of the map and have pupils tell the corresponding food area. Write down ten of the leading products in the order of their importance. Have the pupils study the list. Direct them as follows:

Read over the names of the products.

Look at the first three. Look again.

Close your eyes. Try to repeat the names to yourself.

Look at the board. Read over the first five names.

Look at the first five names. Look again. Read them.

Close eyes. Who can repeat the five names?

Test individual pupils by having them come to the front of the room and read off the five names from memory. Make sure that the pupils are actually looking carefully at the names, and not simply opening and closing eyes in a mechanical manner. Let the pupils study the next five in this manner, and then the whole ten at once.

Write the products on the board as indicated above. Ask the pupils to tell what industries are based on them. Arrange the industries somewhat as follows:

Agriculture	Mining	Grazing	Manufacturing
Wheat raising	Coal	Cattle	Cotton manufactures
Corn raising	Iron	Sheep	Woolen manufactures
Cotton, etc.	Gold	Hogs	Iron and steel, etc.
	Silver		
	Salt		

Ask the pupils to give further details, as, the different forms in which the products are used or sold, the names of manufactured articles, etc. Write on the board the number of people employed in the different occupations, the amount of products, goods, articles, etc., made, and the leading areas and manufacturing centers. Indi-

cate the same thing on a map. Show the pupils pictures of the different industries, and ask them to look for other illustrations. Show labels which indicate the product and the area of production. Let the pupils read about the industries.

In taking up the particular states or groups of states, begin with the home state, and deal with home products. Introduce the subject in much the same manner as that outlined above. Draw a map on the board and fill it in as follows:

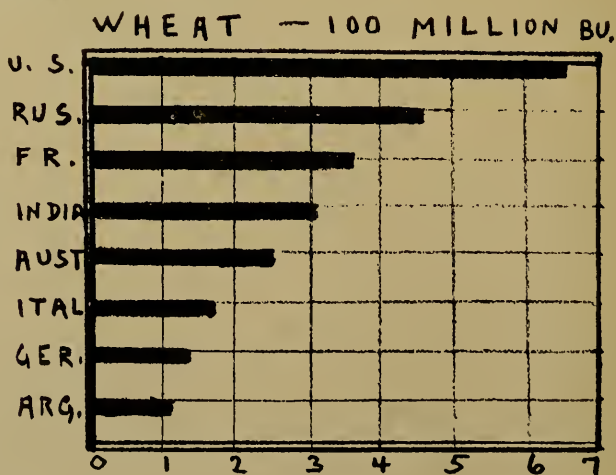


Let the pupils group the products, tell about the industries, etc., as outlined in the preceding paragraphs. Write a list of products on the board and direct the pupils in the visual study of the list. Treat the industries in the same manner. Pass to groups of states or to other sections of the country and present the occupations and products in much the same manner.

Introduce the study of the occupations and products in other countries by means of products known to the pupils. Thus, coffee will lead to Brazil, tea to India or China, sulphur to Mexico, manufactured goods to England or Germany, and so on. Compare some industry in the United States with a similar industry in the other

country, as, wheat raising or lumbering in Canada. If possible, have specimens or pictures of the products or manufactured articles. Illustrate how the product is raised, how the men or women work to get it, how long they work, how they live, what they earn, etc. Draw rough sketches on the board as you tell the story. Make drawings of the implements or machinery employed, and explain how they are used. Do not throw a list of names at the pupils and expect them to study words which may be barren and unknown to them. After the leading products have been presented in the manner suggested, draw a map of the country on the board. Fill in the areas of production, and put in the names of the products. Let the pupils arrange the products under the headings, food, clothing and shelter, or animal, vegetable and mineral. Ask them to place the names in a blank map. Let them study the list of products visually as suggested in the case of the United States.

3. Other countries. *Seventh and eighth years.* Let the pupils study the leading industries in the world, and the resulting products. Select some topic, as, Wheat raising. Have pictures or specimens of wheat. Give a list of the food products made from wheat. Show pictures of wheat fields. Tell how wheat is raised, what tools are needed, what machinery is employed, etc. As you explain, illustrate by blackboard sketches. Show how the men work, how they live, what they earn, etc. Let the pupils tell what conditions are needed for the cultivation of wheat, under the headings, Climate, and Soil. Show the comparative yield of wheat by means of a diagram like the following:



By means of rough blackboard sketches explain how flour is made. Write the names of the leading centers for the distribution of flour. In the same way present other industries, as, Cotton raising, Cattle raising, Coal mining, Wool growing, Canning fish, etc.

Lead the pupils to judge what products can be raised in a country according to the conditions existing. For example, draw a map of Europe on the board. Question the pupils as follows:

Can you grow wheat so high north? Why not?

Where is the climate mild enough?

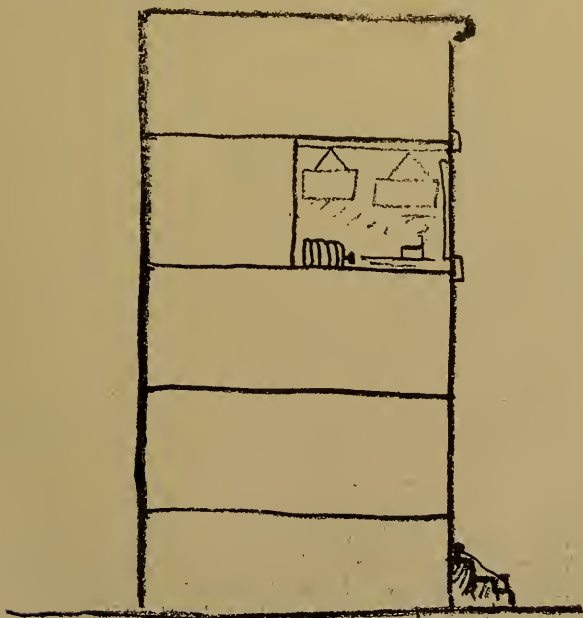
Why can not cotton be grown in Europe?

Where is rye grown?

Outline the countries, and mark out the productive areas with the names of the products. Let the pupils study the map, make lists, and study the lists in the manner outlined above. Compare the needs of some countries with the products of others, and let the pupils form a tentative schedule of exports and imports. Correct these lists and have the pupils study them in the manner suggested.

II. HUMAN HABITATIONS

1. **The home.** *Third and fourth years.* Ask some of the pupils where they live. Make a drawing of a house, somewhat as follows:



As you draw the house, question and explain as follows:

How many stories high is the house you live in?
How high are the rooms? Measure this room.
How high would the house be then?
How do you get to your rooms?
How are the rooms ventilated?
How are they heated?
Tell what the different rooms are used for?
Have I left anything out in my drawing?

Have the pupils explain why houses have so many stories, why the doors are locked at night, how the refuse is removed, and so on. Question them further as follows:

Suppose we keep all the windows closed?
What kind of air must we have?
In the winter what must we have?

Write on the board the following requirements for rooms:

Ventilation
Heat and light
Protection from the weather, from enemies, etc.
Use rooms are put to
Size and shape

In a series of lessons present the homes of other people. Take up a description of the tent of the Indian, the snow house of the Eskimo, the tree dwellings in India, etc. Show pictures of the houses and the people, make sketches on the board to illustrate the parts of the house, and let the pupils read about them. Make a small model of a tent, or hut, etc., and have it in the 'Geography corner.' Write the above topics on the board and ask the pupils to tell how the tent is ventilated, heated, etc., how it is closed, guarded, and so on.

2. The home town or city. *Fourth year.* Develop the idea of the town or city as a place where men and women get their living. Question as follows:

Why are so many people in the city?
What are they doing there?
Why does not your father live in Newark, or Boston?
What else do men do in the city?
Name some of the occupations in the city.

Draw an outline map of the city somewhat like the following:



As the pupils answer, locate some of the industries and write the names on the map. Indicate where ships enter and depart, where trains run, etc. Mark out the business section of the town, the city hall, the residential section, the car lines, etc. Show where the school and the neighborhood are situated. Point out that all the residences, car lines, retail stores, etc., are dependent upon the industries which afford men and women a livelihood.

Have two large maps in front of the room, one a bird's-eye map such as can be bought or obtained for nothing at real estate and similar offices, and another a map of the city streets and car lines. Question the pupils as follows:

How many pupils have gone on excursions in the city?

What places have you visited?

Who has seen Central Park? Bronx Park? City Hall Park?

Write the names of the parks on the board. Tell how to get there. Show pictures of the parks and different views of the places of interest in the parks. Point to the map and locate the parks. Tell stories of how the park is kept, how it was built, what it is for, etc. Arrange to take the children on a trip to one of the parks. In the same way present other topics, as, public buildings, statues and memorials, large business houses, piers, railroad stations, places of historic interest, etc. Do not give them simply as names which must be studied and located. Show pictures of them, tell stories, make sketches on the board to illustrate the general aspect, let the pupils read about them, and so on. Deal with one or more topics in a systematic manner.

Let the pupils study the map of the city in a more formal manner. Draw a map on the board as follows:



Direct and question as follows:

Read the name of the city. Of all the Boroughs.
Which is the largest Borough? The smallest?
Which has the most people in it?
How will you travel from Manhattan to Richmond?
What will it cost to get there?
How else could you get there?

Let them study the map visually, thus:

Look at the map. Read the names to yourselves.
Close eyes. Try to see the map and remember the names.
Open eyes. See if you got the names right.
Close eyes. Think of the most southerly Borough.
What Borough is nearest to Jersey?

Rub out the names on the map. Ask the pupils to name the Borough as you point to it. Name a Borough and let the pupils point at the map. Let them name the rivers, the islands, and the chief lighthouses. Ask them for the names of the streets opposite which the islands are situated.

Show by means of illustrations and blackboard sketches how the city grew. Make a drawing like the following on the board:



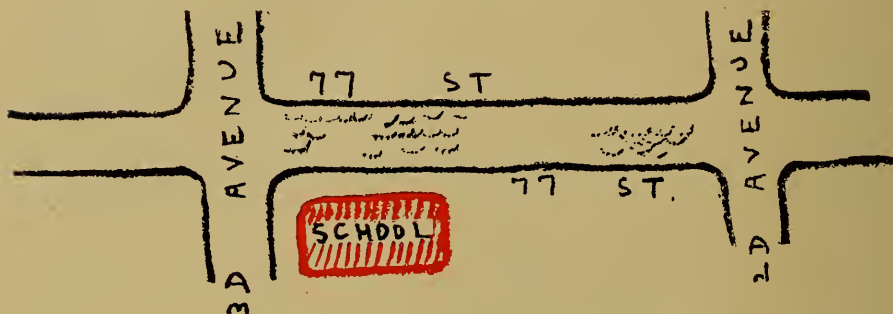
Question the pupils, thus:

Why were there not so many houses in the settlement?
What did the people do for a living in those days?
What do we call a collection of houses like those in the picture?
Where can we now find villages? Where else?

Tell how the city was settled and developed. Tell stories about, or let the pupils read accounts of Henry Hudson, Adrian Block, early settlements of the Dutch, the purchase of Manhattan Island,

and so on. Explain how a town differs from a city, and a village from a town. Show pictures of villages and towns in other countries.

3. Distance and direction. *Third and fourth years.* Teach distance and direction as distance and direction towards or from some definite locality. Draw a map of the school and the surrounding streets on the board as follows:



Hang up placards in the north, south, east and west parts of the room, and label them. Direct and question the pupils as follows:

Step up in front of the room, Smith.

What street do you live in?

Point to it. Point to the East River.

Show the pupils what northeast, or northwest means. Ask them in what direction the downtown cars go, where the City Hall is, where parks, important buildings, etc., are situated. Let the pupils give the names of the bodies of land or water on the north, east, south, or west of the city. Show a map of the city and hold it flat, so that the directions correspond with the directions marked in the room. Hang it upright and show what positions the directions occupy. Point out what part of the city the sun rises in, and where it sets at night.

In teaching distance, begin with the classroom and work outwards. Direct and question as follows:

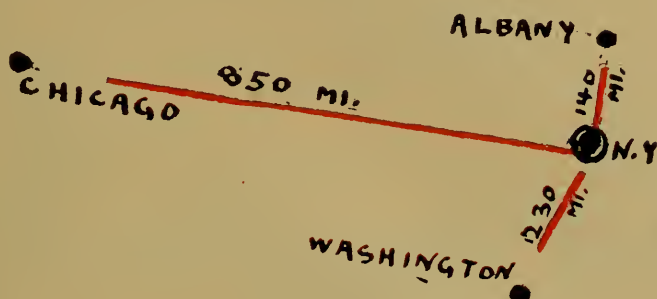
How high is the room? How wide? How long?

If the room is thirteen feet, how high is the building?

How big are the school yards?

If there are twenty blocks to a mile, how many feet in a block?

Let the pupils tell how far the school is from the nearest park, from the City Hall, from the Battery, from Harlem, etc. Draw a map and indicate how long the city is and how wide it is at different places. Show by a diagram like the following the location of the city relative to other cities and countries, as, Albany, Washington, Chicago, England, France, Germany, Italy, etc.:



Let the pupils tell how wide the Atlantic Ocean is, how long the Hudson River is, etc. Ask them to tell how long it will take a train to get to Albany at the rate of thirty miles an hour; how long at the rate of forty miles an hour? Let them work out how many miles a train travels that reaches Chicago in eighteen hours; in twenty four hours; in thirty six hours? Ask them the rate of travel of steamships that cross the Atlantic in ten, twelve, fifteen, etc., days.

4. The world. *Fourth and fifth years.* After the foods, homes, etc., of other people have been presented, show the pupils where some of these people live. Question the pupils as follows:

Of what nationality is the butcher? The grocer?

Where does the coal man come from?

What other nations have people here?

Write down the nationalities as they are given, and add others. Draw a rough map of Europe on the board. Mark off the different countries and name them as follows:



Indicate size, distance, etc. Name a leading city in each country. as, London, Dublin, Paris, Berlin, Rome, etc. Let the pupils tell of other cities of which they know. Show the position of the countries on a large world map or globe and call attention to the names Old World, New World, Europe, etc.

Spend some time on a formal study of the map. Draw a map on the board something like the above. Direct and question the pupils:

Look at the northern part of Europe.

Begin with Spain and read the names up to Russia.

Take the southern part. Begin with Spain.

What countries have been left out?

Now look as I point, Spain, France, Germany, Russia.

Close eyes. Who can name them in order.

Look at the map again.

Now look as I point. Spain, France, Italy, Austria-Hungary, Russia.

Close eyes, etc.

Take the large countries in this manner. Then show the positions of the smaller countries relative to the large, as, Denmark north of Germany, Turkey south of Austria-Hungary, and separated from Russia by Roumania, Servia, and Bulgaria, Greece south of Turkey, etc. After a careful visual study, rub out the names on the map. Point to a country and have the pupils name it. Name a country and let pupils point to the map. Take up a formal study of the more important cities in this way. Ask for only one or two for each country. Deal with any of the other continents in the same manner

5. The United States and other countries. *Fifth and sixth years.* Lead the pupils to look upon the cities of a country as something more than names or dots on a map. Make a close study of one or more large cities. Draw a map on the board and indicate routes of commerce, thus:



Question the pupils:

- What do the railroads carry into New York?
- Where do these products come from?
- Where do they go? How do they go?
- What employment is offered to men and women because of them?
- What comes from board? What is exported?

Make drawings of one or two other important cities, as Chicago or Philadelphia, thus:



Take some city further inland, as, Pittsburg, Minneapolis, or Kansas City, and show the reason for its prosperity as follows:



Show pictures of the leading industries, of the streets and places of interest, of the people at work, etc. Tell how the people live, how long they work, what they earn, and the like.

Let the pupils look at the map of the United States and pick out ten or twelve harbors of note along the Eastern coast. Have them read what each harbor is used for, what the city is noted for, and the approximate population. Write the ten or twelve names on the board, with the name of the state immediately after each city. Let the pupils study these names, visually, three or four at a time. Ask the pupils to name the city when you give the name of the state, and vice versa. Draw a map on the board and have the pupils name the city and state as you point to it. Let them point as you give the names. Write the names on the map and have the class study them visually, and proceed as just suggested. Take up other cities in the same way. Let the pupils look up the ports around the Great Lakes, along the Mississippi, and on the Pacific. Let them pick out the important railroad centers along the Eastern border, through the country from East to West, and in the West. Take each series of from five to ten cities and treat them in the manner outlined. In the study of cities of other countries pursue the same method. Connect the city with some industry or product, illustrate the topics fully, draw a map of the city, question, etc., and then let the pupils study the leading cities in a more formal manner.

6. Distance and direction. *Fifth through eighth years.* Make a sketch on the board to indicate how the larger cities are connected. thus:



Bring out the reasons for these connections, thus:

How does wheat get to New York? Why is it sent there?
Where else is it sent? Why is not New York the only
place?
Why is cotton sent to New York? Where else is it sent?
Why are there different stopping places?
Name the more important centers of distribution.
What goods are sent out?

Ask the pupils to estimate distances on the map on some given basis, as, from New York to Albany. As the pupils give distances, correct them and write them on the lines of connection between the different cities. Let the pupils give the length and breadth of the country, the length and breadth of the home state, the distance across the Atlantic Ocean, etc. Bring railroad maps into the classroom, and let the pupils bring in maps of the routes of railroads and steamships. Mount several of the better maps and pass them round the room. Have some hung up for reference.

Outline some imaginary trip which one of the pupils is to take, as, from New York to Albany, or to Washington, or to Chicago, etc. Have a number of railroad maps for reference. Write the following topics on the board:

Time table and its use
Ticket and its cost at about two cents a mile
Station in New York and how to get there
Train and how to reach it
Baggage and how to express it

Let the pupils tell what it is necessary to do. Question as follows:

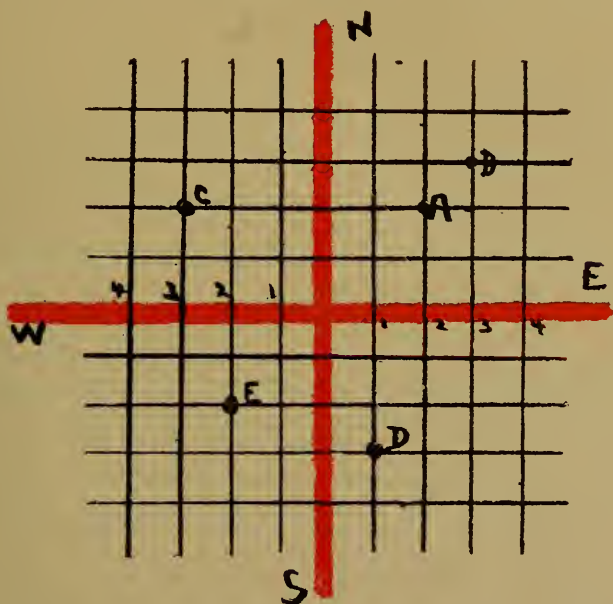
What information will you seek at first?
Where will you go for it?
How will you get there?
Suppose you can't find the place, whom will you ask?
If you don't know your train, whom will you ask?
What sights will you look for?

Have the pupils calculate the speed of the train from the distance between the places and the time according to the time table. Lead them to deal with the whole matter as a situation in real life.

Show how cities and other places are located on the map. Introduce the subject somewhat as follows:

What are the leading avenues in the city?
 If I say you live on Third Avenue. Can you be found?
 What else is needed to place you?
 How else can you be located, if there is no number?
 Suppose a man lives on the corner, how is address given?

Proceed to draw lines on the board like the following, and tell the pupils you are going to lay out a main avenue and a crosstown line:



Call upon pupils to tell how far north some of the letters are. Show that two different places are both the same distance north, but that one is east and the other west. Let them tell how far east the one is, and how far west the other is. Let them locate each place fully. Carry on the lesson as follows:

How far north is A? B? C?
 How far east is A?
 Locate A. Locate these places as I name them.

After the pupils can locate different places, read locations and have the pupils name the places. Have the pupils open their geographies at the map of South America. Call upon them to name place on or near 10° south, 20° south, 10° north, etc. Explain what the figures at the top mean. Let the pupils locate places more accurately. Ask them then to locate New York, Albany, Washington, and some other important cities. Use the term 'degrees' as you explain. Do not attempt to explain the expression further than to tell that a degree measures distance on the earth, and is marked off on the different circles. Introduce the terms 'N Latitude,' 'S Latitude,' 'E Longitude,' and 'W Longitude,' as you read off cities and their locations. Connect in usage the terms 'East and West' with 'Longitude,' and 'North and South' with 'Latitude.'

7. Other countries. *Seventh and eighth years.* Present the cities of Europe, South America, and of the other continents in the same manner as in the case of the United States. Make an intensive study of some of the more important cities, as, London, Berlin, or Paris. Sketch an outline of the city on the board showing its connections with other cities and countries. Tell about the industries, the commerce, the people, the government, interesting places, population, etc. Have the pupils study the map visually. Make a list of the largest cities and let the pupils study the list visually, and also name and place the cities on a blank map. Introduce the series of causes which account for the cities' greatness. Question somewhat as follows:

Suppose the harbor became clogged up, what would happen to the foreign commerce?

Why does not a more inland city get as much commerce?

What enters into the cost of a commodity?

If the city were near the North Pole, how would the commerce be affected?

How does the production of coal and iron help commerce?

What part of the country yields coal and iron?

Let the pupils compare different cities with reference to their nearness to the sea, their climate, their altitude, the resources of the country, and so on. Take such cities as New York and Yonkers, New York and the City of Mexico, London and Derby, the harbors

of England and those of Russia. Ask the pupils what are the conditions needed for the development of a large city. Write down the causal series as follows:

Location, nearness to sea or to natural resources
Climate, not too hot or too cold
Surface, harbor, water supply, etc.
Resources and industries

Have the pupils study each of the most important cities under these heads.

III. SURFACE

1. Local features. *Third and fourth years.* Call the attention of the children to one or two important aspects of the earth's surface. Question the class as follows:

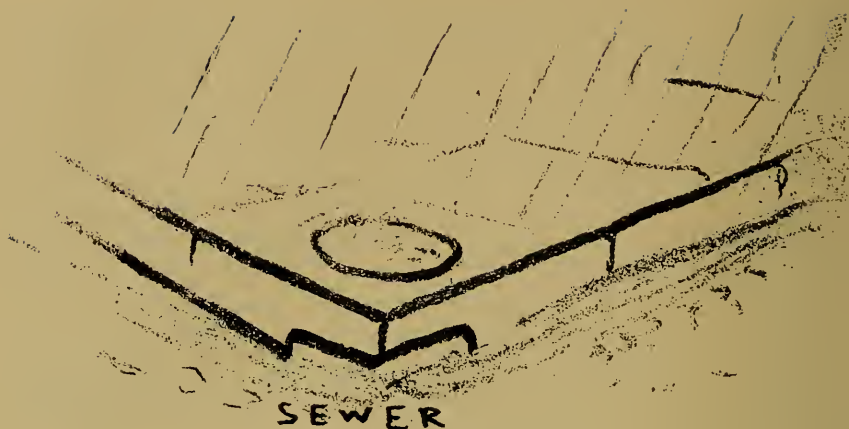
What are the streets paved with?
Where do the stones come from?
Were the streets always as they are now?
Tell how they were long ago.
Where can we find such land now?
What different things do we find in the country?

Show pictures of well-known streets and also streets of other cities and other countries. Call attention to the general division into squares or blocks, and roadways and dwellings or business places. Show pictures of different parts of the earth's surface, as, forest regions, plains, desert surfaces, mountainous tracts, etc. Tell of what use each is, why it can or can not be inhabited, why it can not be thickly populated, etc. Give some account of the native trees and animals. Show pictures, specimens, etc. Tell of animals and plants of other lands.

In bringing out the idea of the slope of the land, proceed somewhat as follows:

Where does the water go when it rains?
Where does it go after it hits the sidewalk?
Why does it flow towards the sewer?
Where does it then go? How? Why?
In the park where does some of the water go?
In the country how does the water reach the sea?
Where does some of it go?

Illustrate what the discussion has brought out by the following drawing:



Follow up the progress of the passage of the water to the sea. Show how some of the water remains in pools, helps to form lakes, is sucked up by the earth, forms underground streams, and so on. Let the pupils point to the name and local rivers, channels, creeks, lakes, and bays.

2. The home town or city. *Fourth year.* Let the pupils compare the height of one part of the city with another. Question them as follows:

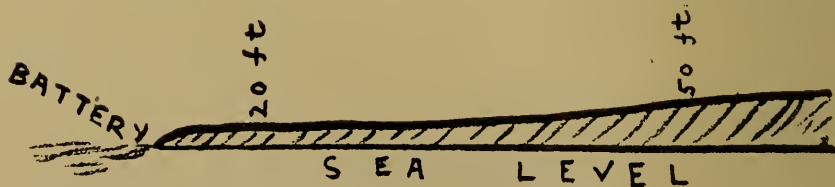
How high is this street above the sea level?

How high is the Battery? Harlem?

What is the highest part of Manhattan Island?

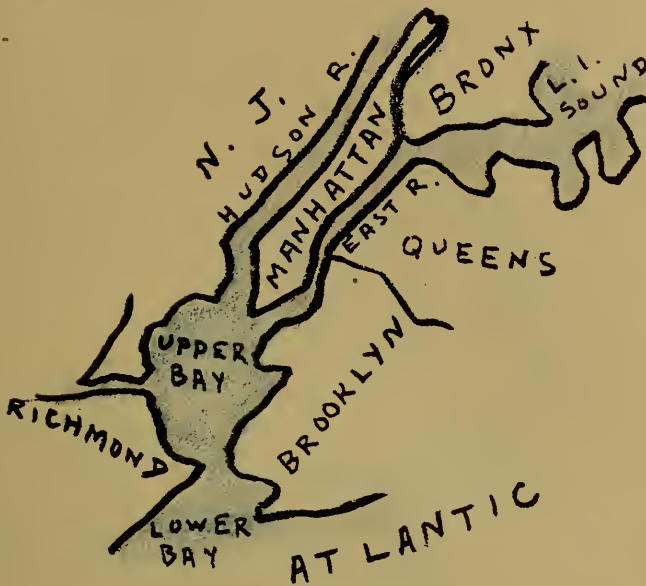
What is the highest part of Brooklyn? Bronx? Etc.

Draw the following map to illustrate the surface of Manhattan:



Draw similar maps for the other Boroughs. Tell the pupils the length of the Borough, its breadth at different parts, and its area. Show different kinds of soil, of rock, etc., peculiar to the Boroughs. Give some account of the original surface of the land, how parts were leveled, swamps filled in, and so on. Point out what parts are good for habitation and why.

To show the different bodies of water draw a map like the following:



Question the pupils as follows:

- Which way does the Hudson flow?
- Where does it get its water from?
- Why is not the East River really a river?
- Why are there tides in the East River?
- Where is Hell Gate?
- Does the tide from the Ocean from Sandy Hook strike it at the same time as the tide by way of Long Island Sound?
- Tell what happens.

Direct the pupils in a visual study of the map, thus:

- Read the names of the waters from the Hudson to the Ocean.
- From the Sound to the Ocean.
- Look at the west side of the city. Look at each name.
- Close eyes. Try to repeat the names.
- Open eyes. Look again at the Upper Bay. South of it.
- Who can tell the class what waters are on the west shores?

Rub the names off the board. Let the pupils point to the bodies of water and name them. Name a body of water and let the pupils locate it. Let the pupils study the map, Borough by Borough, and proceed in the manner indicated.

3. The world. *Fourth and fifth years.* Proceed in much the same manner with the study of the continents. Draw a map on the board, thus:



Question the class:

Why do the principal rivers flow towards the Atlantic Ocean?

Why does the Uruguay River flow south, and the Tocantins north?

Why can thick forests grow south of the Amazon River?

In what general direction do the Andes Mountains run?

If possible illustrate the surface with a large relief map made of clay or paper pulp. Show pictures of the vegetation, tell of the different kinds of woods, of coffee, rubber, etc., and of the animals peculiar to the continent. Then let the pupils study the map in a formal manner as indicated in the preceding paragraph. Ask them to name and locate the highlands, mountain ranges, and three or four principal rivers. Treat the coast line and the surrounding bodies of water in the same way.

4. **The United States and other countries.** *Fifth and sixth years.* Show the leading areas of production on a map like the following:



Question the class:

Why can so much wheat and corn be raised in the Mississippi Valley?

Where does the Mississippi get its water from?

Why is there not such a supply in the region west of the Rockies?

From which direction do the winds come that carry water over the Mississippi Valley?

How are the Great Lakes filled with water?

Explain the formation of Niagara Falls.

Show pictures of plants and animals common in the United States. Try to get specimens of the different kinds of wood, cereals, etc. Let the pupils discuss possible conditions with the Rockies on the eastern coast and the Appalachians on the west. Have the pupils study the map in a formal manner as suggested above. Let them study highlands, lowlands, mountains and river systems together. Then have them study coast line, surrounding bodies of water, peninsulas, and islands.

In passing to a detailed study of the United States, begin with the home state. Draw a map on the board, and treat as above. Write the names to be studied next to the map as indicated in the following:



Deal with foreign countries in much the same manner, thus :



After questioning, discussion, illustration by means of pictures, specimens, story, etc., direct the pupils in the formal study of the map.

5. Other countries. *Seventh and eighth years.* Present the surface of individual countries in the same manner as that suggested above. Let the pupils compare the surface of the United States with that of other countries according to :




Length, breadth, area
Highlands, direction of, and general effects of
Lowlands, valleys, nature and fertility of
Rivers, use of, for commerce and irrigation
Coast line and harbors

Hang a map before the pupils and let them compare the countries, point by point. Draw the two cross sections on the board to aid in the comparison.

IV. CLIMATE AND TIME

1. The weather, day and night, and the seasons. *Third and fourth years.* Present these features in a descriptive way without attempts at analysis and explanation. Have the days of the month marked off on a chart or in a corner of the board. Over the name of the month write the name of the season. Each day write down whether the day was cold, cool, warm, or hot, and also if it was fair, cloudy or rainy. The calendar will look something like this:

M A Y —

SUN.	MON.	TUE.	
30	1 	2 	3
7	8 HOT.	9 COOL.	10 
14	15 COOL	16 WARM	WARM

Some time during the month go over the different kinds of weather recorded. Ask the pupils questions as follows:

- How many rainy days have we had?
- How many fair days? Cloudy?
- How was the wind blowing on the rainy days?
- In which direction were the clouds moving?
- Where did they get the water?

Let the pupils pass judgment on the general kind of weather during the month. Keep a record, *e. g.*, 'Fair and cool, 5 rainy days. October, 1912,' and use it for comparison with other months.

Teach the seasons as they are popularly known, *i. e.*, as times of the year in which changes in the weather take place, and during which plants and animals undergo a change. Question the pupils somewhat as follows:

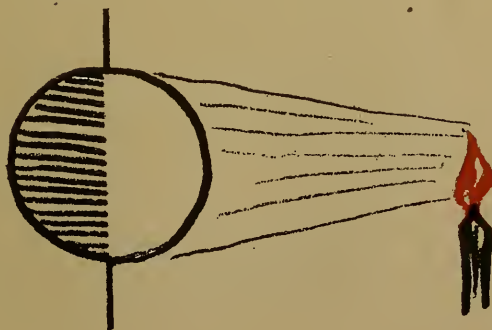
When will we have snow?
 What happens to the trees in the winter?
 Where do some of the northern birds go?
 How is winter different from summer?
 What plants grow in the summer?

Let the pupils name the summer months, the winter months, etc. Write them on the board in the following manner:

<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
March	June	September	December
April	July	October	January
May	August	November	February

Tell the pupils about the festivals, holidays, etc., in this country and in other lands. Let them read about the customs of people as determined by the seasons. Show pictures and tell about the pleasures, occupations, etc., common during the seasons, as, ice skating, tobogganing, swimming, etc., sowing, reaping, harvesting, holding fairs, etc.

Show the difference between day and night by the well-known device of candle and globe. Rotate the globe slowly. Draw the resulting light and shadow on the board:



Question as follows:

Suppose this white spot is the school.

As I turn, raise hands when it is time to go home.

Where shall we be to-night?

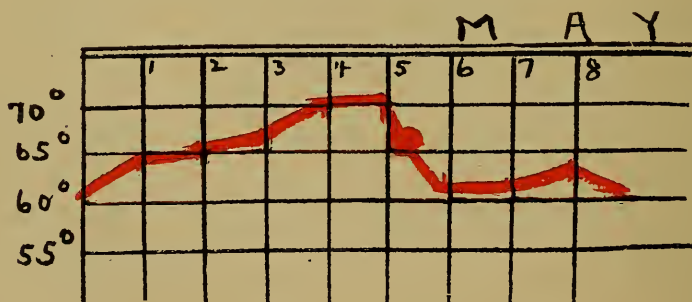
Now it is night. Where shall we be to-morrow?

How many times does the globe turn in one day?

How many times does it turn in a week? In a month?

Darken the room before you begin to illustrate. Make sure to use a real globe and a real light. Do not be satisfied with only the blackboard illustration.

2. **Climate, zones and circles.** *Fourth and fifth years.* Keep a record of the weather by means of a chart like the following:



Indicate rainy days by means of a red circle. Point out that the range of the weather during the different months usually remains between two levels. Question the pupils as follows:

Where shall we find it fifty degrees below zero?

Where is it almost always hot?

Suppose we keep going north? South?

Suppose we keep on going south?

Read stories as told by explorers of extreme heat or cold. Show pictures of life in torrid regions and in cold regions. Give accounts of the trees and animals in the different lands and illustrate them by means of pictures. Let the pupils read about the topics suggested.

Draw the following on the board :



Have a magnifying glass and show how the rays of the sun focus at a small spot. Let some of the pupils put their hands under the focus. Question as follows :

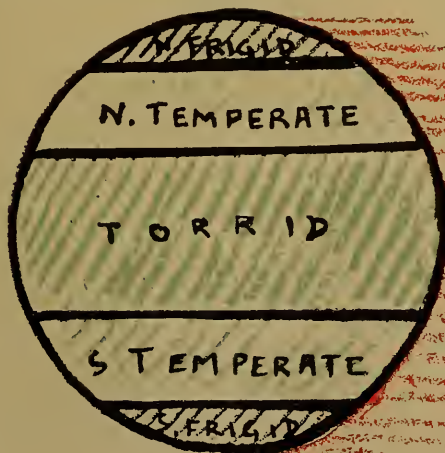
What difference is there between the heat all over the top and that at the focus?

Why is the focus hotter than a spot of the same size at the top?

Take this distance near the Equator. Compare it with the same distance further up north. Which is hotter? Why?

How does the heat at the Equator work on the air and water there?

Mark off the zones as follows :



Write the names on the board. Have the pupils tell the meaning of 'frigid,' 'torrid,' and 'temperate.' Let the pupils read about the life in the zones, and tell interesting accounts about the different forms of life there.

Take up the climate of the United States. Indicate the climate of the different regions by means of the following map:



Question and point to the map as you question:

- Why can we grow cotton here and not here?
- Why can we grow cotton here and not here?
- Why is there no frost in Florida? Why in New York?
- Why do the storms in winter move out towards the Atlantic?
- Why do the winds in summer carry rain over the Eastern coast?

Compare the regions in the East with the dry regions in the interior. Bring out the difference between the climate along the Atlantic coast and that along the Pacific. Show the effects of the rainfall and the temperature on the different forms of vegetation.

Show the difference between the pressure of the air in the room and that outside. Open the window and hold a streamer in the open space. Question as follows:

Why does the streamer blow in?

Why does the air outside push it in?

Open the window at the top and see how the streamer behaves. Open the door slightly and repeat the test. Make the following drawing on the board:



Question the pupils:

How is the wind blowing to-day?

How does it blow on the beaches?

Why does it blow from the sea in summer?

Why does it blow from the land in winter?

For a number of days let the pupils note the direction of the wind, and mark it on the board. Use it as material for further explanation and discussion.

On rainy days have the pupils note which way the clouds are moving. Write down several instances on the board and question as follows:

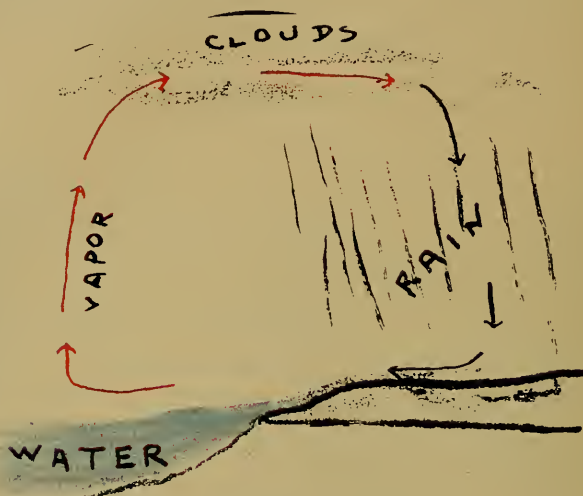
Where did the clouds come from?

Where did they get their water?

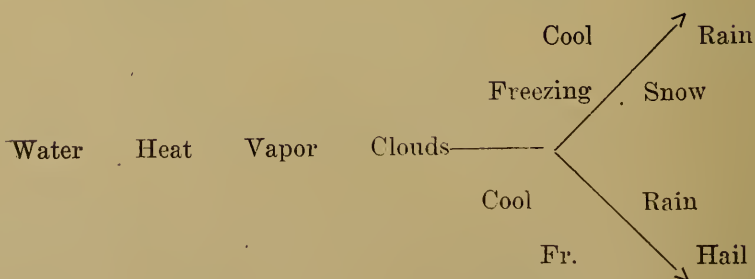
How did the water get to the clouds?

Did the sun really 'pull' any water up?
 If you heat or boil water, does the fire 'pull' the water up?
 What really happens to the water?

Make a diagram like the following on the board:

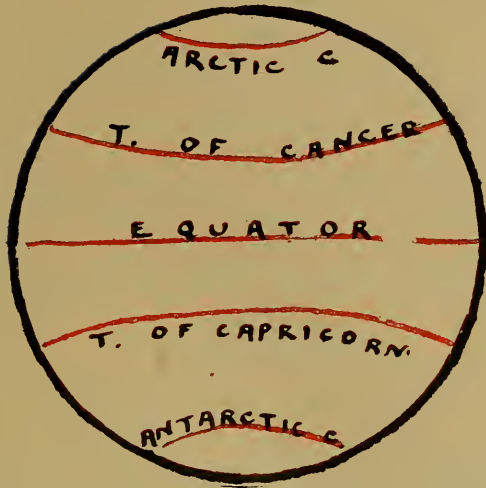


Write on the board the different stages, thus:



Let the pupils study visually both the diagram and the outline of stages.

After lessons similar to the preceding have been given let the pupils study zones and circles in a formal manner. Draw the following on the board:



Point to the map and question:

What zone north of the Equator? South of it?
 What zone south of the Tropic of Capricorn?
 Why is it so cold in this zone?
 How do the sun's rays strike here?

Direct the pupils in a visual study, thus:

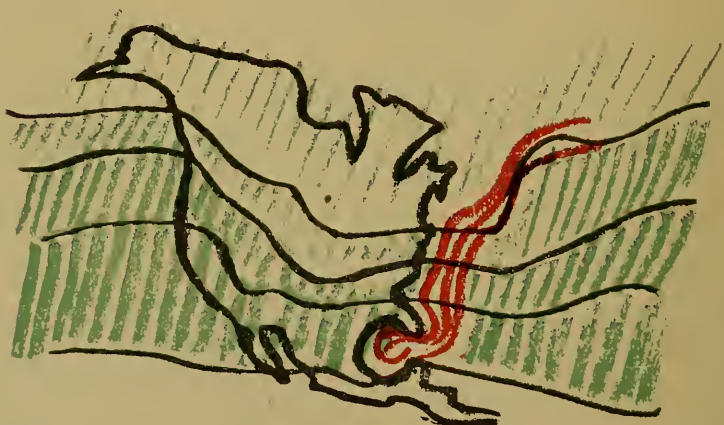
Read the names of the circles as I point.
 Read them from the north down. From the south up.
 Read from the Equator up. Read from the Equator south.
 Close eyes. Try to name the circles from the north down.

Rub the names out of the map. Ask the pupils to name as you point, and to point to the map as you name the zones and circles.

3. Climate, seasons, longitude and time. *Sixth through eighth years.* Take up the study of the climate of other countries in a manner similar to that given above for the United States. In addition write the following topics on the board:

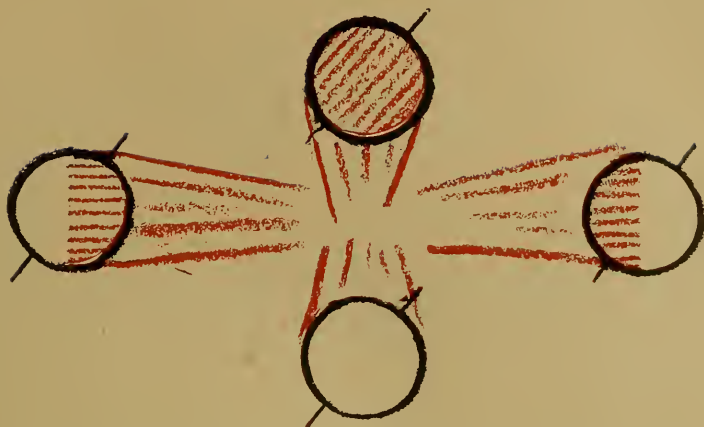
Location near the sea	}	—Equator
Location above the level of the sea		
Winds, storms, etc.		
Rainfall, winter and summer		
Temperature, winter and summer		

Ask the pupils to tell about the climate of the home city, and of other cities, under these heads. Deal with countries in the same manner. Indicate average temperatures of the same degree which exist in different parts of the country and draw isotherms for the different degrees, as, 70° , 60° , etc. Compare the winds of the city or country under discussion with other winds, as, monsoons, sand storms, trade winds, etc. Show how the Gulf Stream is formed and how it affects the climate of western Europe. Have a map of the country in question on the board during the discussion, similar to the following:



TEMP. FOR JANUARY

To illustrate the cause of the seasons, darken the room and place a strong light in the center. Use an electric bulb or a strong lantern. Hold the globe with the axis properly tipped. Show the pupils how the earth is lighted in front of the room. Sketch the result on the board. Pass to one side of the room and repeat the process. Go slowly around the room, or let a pupil do this. Illustrate the complete revolution by a drawing like the following:



Repeat the illustration of the revolution of the earth, and spend some time in showing why 'the long night' exists at the polar regions. Emphasise the fact that not only the revolution of the earth, but also the tipping of its axis causes the seasons.

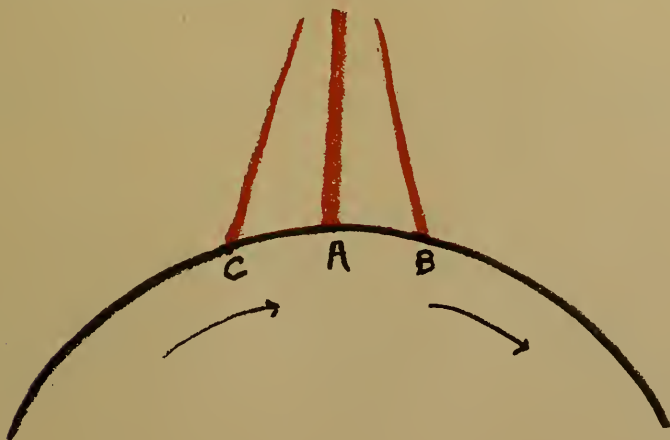
Contrast the time at the present with the time in other countries. Direct and question as follows:

This morning, now, what are the boys in England doing?

What are they doing in San Francisco?

Why are the schools in England closing for the day, now?

Illustrate the difference in time as follows:



Question somewhat as follows:

It is noon at A. What time is it at B, C?
 At what places is it night time when it is noon at A?
 Where will A have moved at 1 o'clock? At 2 o'clock?
 How can we tell exactly?
 Over how many degrees does the earth turn in one day?

Give the longitudes of cities like New York, London, Chicago, San Francisco, etc. Let the pupils reckon the difference in longitude between New York and some other city. Have them find the difference in time. Assign times, and let the pupils give the time in the other city, thus:

New York, 75° W Chicago, 90° W San Francisco, 120° W
 London, 0° Berlin, 15° E

Give the difference in longitude between New York and each other city.

Give the difference in time between New York and each other city.

When it is noon in New York, what time is it in the other cities?

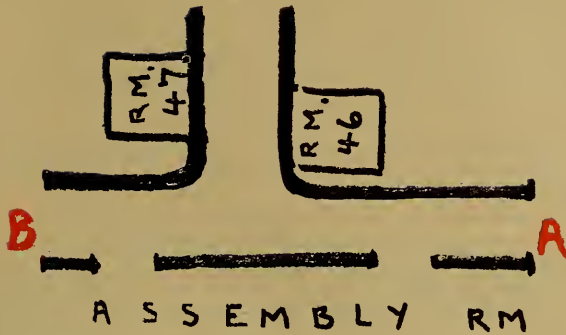
When it is 9 A. M., 3 P. M., 9 P. M., etc., in New York, what time is it in the other cities?

If necessary aim them by drawing the following diagram on the board:



V. MAPS AND GRAPHS

1. **The map.** *Third and fourth years.* Show the use of the map as a means of finding places. When the new class enters introduce to them the room, halls, stairways, etc., by a diagram like the following:



Direct and question as follows:

Now this is our room.

Suppose you stand at the door and face the hall.

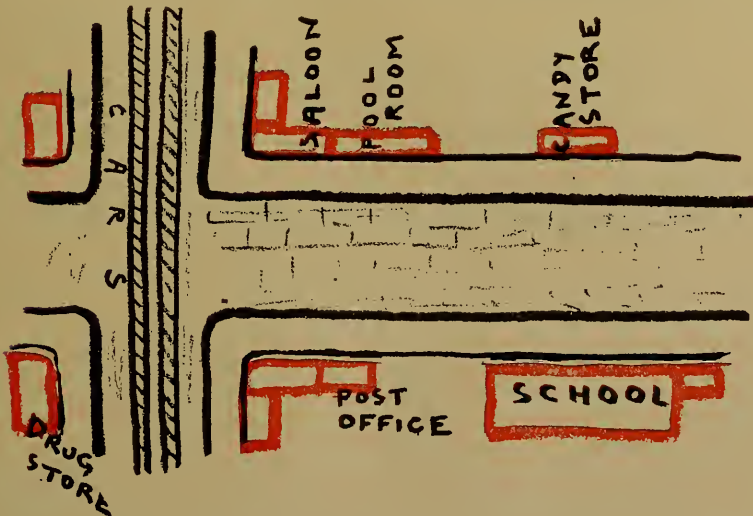
In what direction is stairway A?

Which way will you go to reach exit B?

Suppose you stand at stairway A and face the hall.

How will you reach our room?

Draw a diagram of the yards, and indicate where the class is to stand. Draw a map of the neighborhood, thus:



Question the pupils:

Who can point out where the candy store is?
Where is the grocer's? The baker's?
Where shall we have to go to get to the Park?

Show the correspondence between the map and a locality by the following drawing:



Draw the locality first and then let the pupils direct you, step by step, how to map out the different parts.

2. Formal study of the map. After story, illustration, discussion, etc., lead the pupils in a visual study of the map. If possible, group what is to be studied as follows:

- (a) Products, occupations, industries
- (b) Cities along the coast, along railroad routes, capitals
- (c) Highlands, mountains, lowlands, plains, rivers, lakes

- (d) Coast line, bays, gulfs, peninsulas, islands
- (e) Boundaries, names of states and countries

Direct the study in the following manner:

Look at the map.

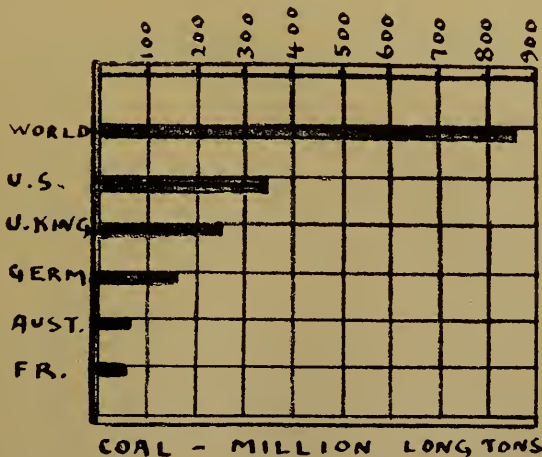
Read all the names, from the north, south, from the east, west, and back.

Read as I point. (Point in one direction, and include from 3 to 5 names).

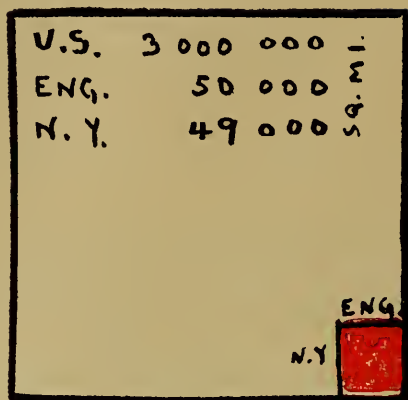
Look at them. Look again. Close eyes. Repeat the names. Open eyes. Look again. Repeat the names to yourselves.

Restrict the study to a few related topics as indicated in the preceding directions. Draw a clear, outline map on the board, with only the topics to be studied upon it. Associate the visual impression with whispered repetitions or only tongue movements. Test the results of the study by calling upon a few of the poorer pupils to recite in front of the class or to point out the name with a blank map.

3. The graph. In illustrating comparison of different amounts, use a graph like the following:



Represent areas as follows:



If possible have charts made of the more important graphs.

VI. USE OF THE TEXT-BOOK

1. Reading. *Third and fourth years.* Conduct the lesson in much the same manner as a regular reading lesson is conducted. Write on the board such words and expressions as give the key to the subject matter. Thus, in a lesson on the industries of the United States, select such words from the book as:

Appalachian	manufacturing	laborers
Mississippi	agriculture	articles
Sierra Nevada	industries	transportation

Go over such words with the class before letting them read. Let the pupils read either silently or aloud. After a pupil has read, ask the class to tell what he has read. Call upon individual pupils, and direct them, if necessary, by questions.

2. Topical study. *Fifth through eighth years.* Let the pupils read as above directed. After a pupil has read call upon the others to put what he has read into a single sentence. Have the pupils read a paragraph silently. Ask them to give the topic sentence for the paragraph. Write a series of consecutive topics sentences on the board and call upon the pupils to tell about what each topic suggests.

Assign definite topics for silent reading. Let such reading be done either in the classroom or at home. Write the topic on the board, indicate the reading matter, and give the page and the paragraph. Let the text-book reenforce the class instruction. Directions such as follows are models:

- (a) Wheat, corn, cotton
Read pages —, —, —, —.
- (b) Look for 'Wheat' in the index and the table of contents.
Read about the countries which produce the most wheat.
Find out what countries export wheat, and where it goes.
- (c) See tables on pages —, —, —, —.
Look up maps on pages —, —, —.
Read pages —, —, —.
- (d) On page —, give the latitude and the longitude of the wheat producing areas. Name the states covered by this area. What state produces the greatest amount?
- (e) Locate 10 harbors on the coast of map —, page —. Read up what each city produces, how large it is, and facts of interest connected with it.
- (f) On map —, page —, find four large rivers which flow into the Atlantic Ocean. Find the mountain or highland which gives rise to the river. Name the plain which it waters. What countries or states does each river water.

Hold the pupils strictly to the information asked. Use both geographies and supplementary readers in this manner.

VII. GENERAL SUGGESTIONS

From time to time, get pictures which deal with the topics of instruction. Whenever you see something relevant in paper or magazine, cut it out. Use old geographies for this purpose. Mount the pictures on cardboard about 5x8 or 7x11 inches. Have the pictures arranged under headings like the topics in your term plan. Before you give the lesson have the pictures either hanging up in front of the room, or ready for distribution among the children. Direct the pupils what to look for in each of the pictures. Pictures of larger size may be framed or mounted and added to the permanent classroom decoration. If possible, reenforce this with a collection of different specimens, as, woods, products, cereals, fibres, etc.

As a general rule, never give a lesson without using a map or a graph. Draw an outline on the map and fill in only what is to be presented in the lessons. Artistic ability is not required. If not proficient, then practice the drawing to be put on the board. Sketch the map on the board with light strokes, and finish with a firm, heavy line. Use blue crayon for the seas, green for the plains, brown or purple for the highlands, and red, yellow, or orange for outlines. Write figures and letters in white. In the classroom have one or more wall maps, a large globe, a paper pulp map, and charts. Make the relief map in paper pulp yourself, as suggested in the first chapter. Make the charts either on large cardboard or on white shades.

CHAPTER XII

HISTORY AND CIVICS — VISUAL

1. HOLIDAYS

In classes of the first three or four years prepare, several days in advance, for such holidays, as, Washington's Birthday, Thanksgiving, Columbus Day, and holidays of more local character. For Washington's Birthday, hang up pictures of Washington, his home at Mt. Vernon, the Washington Monument, and scenes in which he figures, as, crossing the Delaware, inauguration, etc. If there is a calendar on the board, make the date prominent by marking it in red, putting a wreath around it, etc. Tell stories about his boyhood, his plantation life, his school life, incidents connected with him, mode of life at the time, and so on. In the higher grades, show similar pictures, and mount illustrations and reading matter from current periodicals. Let the pupils read about Washington. Write a summary on the board as follows:

George Washington

Born Feb. 22, 1732, died Dec. 14, 1799

Surveyor for Lord Fairfax, 1748

With Braddock in the French and Indian War, 1755

Takes command of the American Army at Cambridge, 1776

Leader in the Revolutionary War, 1775—1783

First President of the United States, 1789—1797

Tell interesting stories about Washington at different stages of his career and let the pupils read interesting accounts.

In connection with Thanksgiving Day, in the lower grades, make a drawing of a big turkey on the board, and hang up real or paper pumpkins, with eyes, nose and mouth cut out. Show pictures of the voyage of the Mayflower, the landing of the Pilgrims, Pilgrims going to church, planting, etc. Tell stories about the life of the Pilgrims, their friendship with the Indians, their first Thanksgiving Feast, and so on. In the higher grades show pictures of the lives of the Pilgrims, their struggles in the New World, colonial life, etc. Write an outline on the board as follows:

Thanksgiving Day

First Thanksgiving Day at Plymouth, 1621, after the first harvest

Massachusetts Bay Colony first set aside a day in 1630

Washington appointed a day, Thursday, November 26, 1789

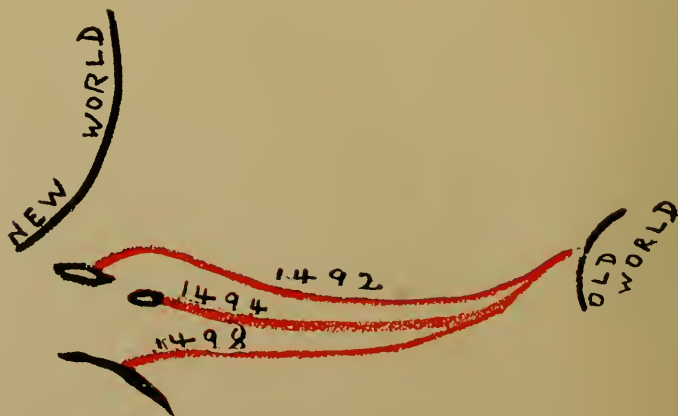
Lincoln appointed the fourth Thursday of November, 1864

Do not ask the pupils to memorise the outline or to study it formally. Leave it on the board to give the pupils some idea of what the holiday is about. Give accounts of the life of the Pilgrims in England and America, of their struggles and successes in the New World, etc. Treat other important days in the manner outlined.

II. DISCOVERIES AND EXPLORATIONS

1. Fourth and fifth years. Center lessons on the discoverers and explorers on the following four: (1) Columbus, (2) Cabot, (3) Verrazzani, and (4) Hudson, as representatives of (1) Spain, (2) England, (3) France, and (4) Holland. Take up each of the four somewhat fully, in the order named. Then present more briefly the other explorers under the countries named. Deal with the topics by means of the following: (1) illustrations with pictures, blackboard sketches, etc., (2) stories of the explorer, his voyage, progress in the New World, etc., and (3) reading by the pupils.

In the case of Columbus, show pictures of Columbus, of his appeal before the Court of Isabella, of his voyage, landing, return home, etc. Tell interesting stories about his beliefs, his travels to get aid, his success, voyage, etc. Draw a map on the board and indicate his voyage as follows:



Give some account of the Indians, how they lived, how they compared with Columbus and his men in dress, weapons, manner of living, etc. In the same way present Cabot, Verrazzani, and Hudson.

Give lessons on the other explorers in the following groups:

Spain	England	France	Holland
Columbus, 1492	Cabot, 1497-98	Verrazzani, 1524	Hudson, 1609
De Leon, 1513	Drake, 1577	Cartier, 1535	
Balboa, 1513	Raleigh, 1585	Champlain, 1608	
Magellan, 1520		Marquette, 1673	
De Soto, 1541		Joliet, 1673	

After illustrations, story, map study, and reading, let the pupils study a group of explorers visually, thus:

Spanish
Columbus, 1492
De Leon, 1513
Balboa, 1513
Magellan, 1520
De Soto, 1541

Read the names and dates softly.

Who can tell what Columbus did?

Where was he born? For what country did he sail?

Look at the first three names. Look again.

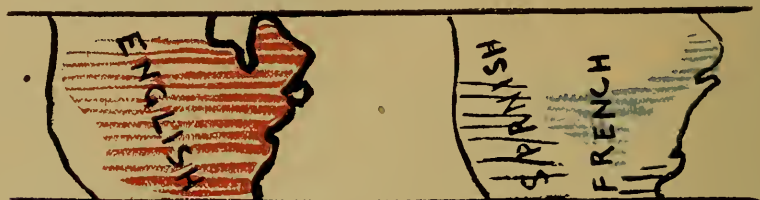
Repeat them softly. Close eyes. Now repeat them.

Open eyes. Look again. Read the whole five.

Repeat the names and dates softly. Close eyes.

Call upon several pupils to repeat names and dates before the class. Let the class look at the board and be ready to correct. Call upon pupils to tell about the voyage of each man. Let them point to the map, trace the voyage, and tell about it.

2. **Fifth and sixth years.** Present the explorers in the manner indicated above. In addition show by the following map what each of the countries claimed because of the discoveries and explorations:



Question somewhat as follows:

Why did France have a better claim to the Mississippi Valley than England?

Who explored the Mississippi for France?

What did they try there? Why? When?

Name the French explorers in order.

Have the pupils formally study the explorers in groups, as above.

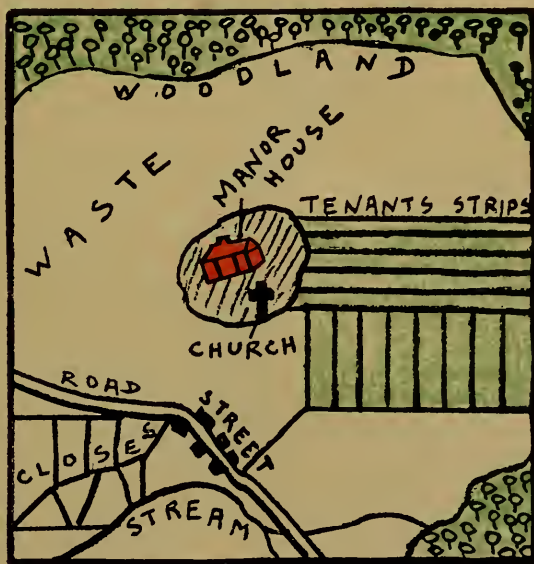
3. **Seventh and eighth years.** Show the pupils what conditions, existing in Europe, led to the discoveries. Take up briefly the conflict between the Mohammedans and Western Europe. Draw a map on the board as follows:



Question the pupils as follows:

- What lands did the Crusaders reach?
- What are some of the products of these lands?
- What did the Crusaders bring back with them?
- How could supplies reach the Crusaders in the East?
- Name some other routes. Point them out.
- What great cities traded on the coast?

Show the relations which existed between the lords and the men under them. As a type, illustrate village life in England under the Feudal System, thus:



Question as follows:

- To whom does the tenant pay rent now?
- Describe a village in England or America to-day.
- To whom do the people owe allegiance to-day? Why?
- Who make the laws? How?

Show the relations of the villeins and cottars to the lord of the manor. Impress the fact that, throughout Europe, similar relations existed between the people and the lords or robber barons.

Illustrate the trades routes between the East and the West by the following map:



Question as follows:

Why did Venice and Genoa become so important?

How did the goods reach them?

How was this commerce interfered with?

When Constantinople fell in 1453, what routes were closed?

Show how Genoa and Venice sent goods up north through France and Germany where Fairs were held to sell them. Point out the interference and robbery by the robber barons of caravans sent up north. Trace the growth of the Hanseatic League, thus:

What other way can goods reach north Germany from Genoa?

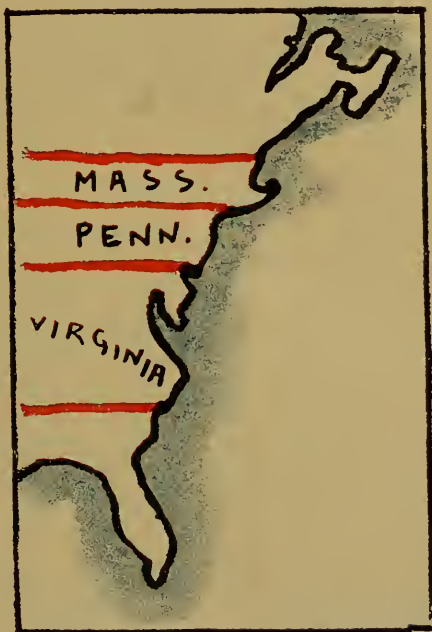
Name some ports in Germany.

Why should Hamburg, Bremen, and Lubeck wish to form a League?

Show that the League was developing a caravan route through Russia and China. Bring out the necessity of finding a shorter route to India, because of the expense and the danger of the overland route and the route by way of Africa. In connection with the development and the growth of cities, give some account of the craft guilds, the decay of Feudalism, and note the more important inventions, as, gun powder and printing.

II. COLONISATION

1. **The English.** (a) *Fifth and sixth years.* Present in detail the colonisation of (1) Virginia, (2) Massachusetts and (3) Pennsylvania, as centers for the (1) Southern, (2) Northern, and (3) Middle English colonies. Draw a map on the board and show where the settlements began, thus:



Question the pupils as follows:

What discoverer gave England claim to the land?
Point to the colder regions. To the 'rock-bound coast.'
Where is there good fishing? Good land for tobacco?
Where can corn be raised? Wheat?
How did the Indians live? How did they travel?

Mark off the grant of the London Company. Tell the pupils interesting stories of the early settlement at Jamestown of the work

of John Smith, and of the character of the settlers. Sketch on the board the general features of Jamestown, thus:



Question the pupils and point to the map as you question:

What men are needed to build this? And this?
 What must men do before plants will grow?
 What plant did the colonists raise most?

Show pictures and let the pupils read about the topics presented.

Present one or more important events in the history of the colony, like Bacon's Rebellion. Draw a map on the board, thus:



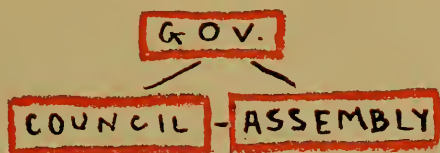
Question the pupils as follows:

Which way would the town grow? Point to the map.
 Where would the merchants and traders live?

In which direction would the plantations spread?
 Who would come into contact with the Indians?
 Why were not the merchants on the coast anxious to go
 against the Indians?

Show the pupils that Governor Berkeley and the merchant class, more interested in trading with the Indians than in the back country plantations, would hesitate in sending troops against the Indians. Let the pupils read paragraphs in their histories, on the topics presented.

Illustrate the government of Virginia by means of the following diagram:



Question and direct the pupils as follows:

When the governor is appointed by the king, what is the government called?
 Who would then appoint the council?
 If a proprietor appointed the governors?
 Under a charter how would the governor be appointed?
 What body was always elected by the people?

Compare the form of colonial government with other forms, thus:

What bodies govern in this city?
 Which one takes the place of the assembly?
 How is the state governed? The country?
 Who elects the governor? The president?

Outline the forms of government as follows:

Colonial Government

Body	Name	Royal	Proprietary	Charter
Executive	Governor	King	Proprietor	People
Legislative	Council	King	Proprietor	People
	Assembly	People	People	People

Tell the pupils about the first representative assembly at Jamestown, in 1619, and how it was constituted, two representatives from each of eleven boroughs, to be called the House of Burgesses.

After lessons similar to the above have been given, let the pupils study an outline of the important facts. Write the outline on the board, thus:

Virginia	
<hr/>	
London Company, Jamestown, 1607	
First representative assembly, 1619	
Slavery introduced, 1619	
People	
	Smith, Dale, Berkeley, Bacon (1676)
	Traders, planters, workmen, indented servants, negroes
Products	
	Tobacco, corn, potatoes
Government, finally royal	

Question the pupils as follows:

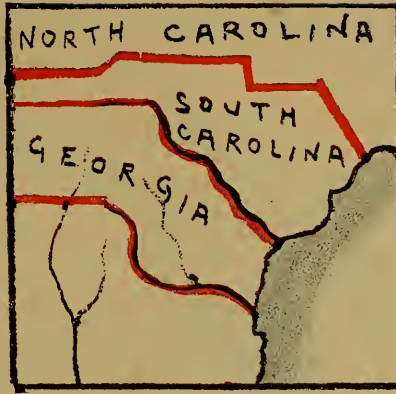
- Why did the first settlements fail?
- What kind of people were needed? Why?
- What men succeeded in establishing the settlement?
- What were 'indented servants'?

Let the class study the outline visually, thus:

- Read over the first three lines. Repeat them softly.
- Look again. Look at the dates. Repeat them softly.
- Close eyes. Try to repeat the lines. Look at the board.

Ask some of the pupils to stand before the class and give a brief account of the events as outlined on the board. Name the event and call upon pupils to give the date. Give the date and have pupils name the event. Pass the questions rapidly round the class.

Present the other southern colonies more briefly. Draw a map on the board as follows:



How does the land of Carolina compare with that of Virginia?

Why would some of the Virginians go further south?

What else was raised there besides corn and tobacco?

Let the pupils read about the colonies. Write an outline on the board as follows:

Southern Colonies

Virginia	Jamestown	1607	Charter, Royal
The Carolinas	Charleston	1670	Proprietary, Royal
Georgia	Savannah	1733	Proprietary, Royal
Maryland	St. Marys	1634	Proprietary, Royal

Have the pupils point out how the colonies differed, thus:

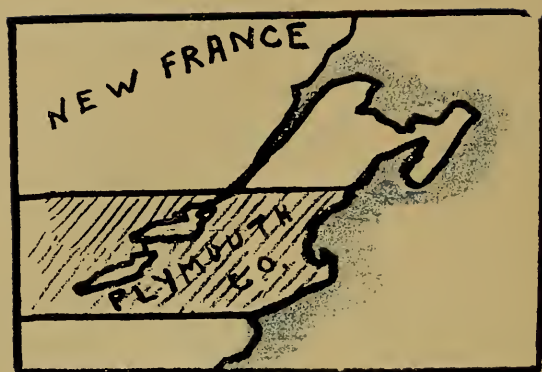
What products were raised in the Carolinas?

What was the difference between the settlers in Georgia and those of Virginia?

What was a 'poor debtor'?

Let them study the outline visually as directed above.

Take up the study of Massachusetts in detail as in the case of Virginia. Tell about the Plymouth Company. Show the grant of land by a map on the board, thus:



Tell about the Puritans, their trials in England and Holland, and their voyage in the Mayflower. Trace their voyage on the map. Question the class as follows:

How does the climate compare with that of Virginia?

What kind of land is there along the coast?

What plants could be raised?

How did the settlers compare with those of the south?

Contrast the widely spread plantations of the south with the closely knit villages of New England. Compare the activities of the two sections, trading, fishing, and manufacturing, with tobacco raising. Tell interesting stories about the life of the people, their occupations, troubles with the Indians, etc. Let the pupils read about the topics presented.

Give a more formal lesson on the colony. Write the following outline on the board:

Massachusetts

Landing of the Pilgrims at Plymouth, 1620

Massachusetts Bay Colony, 1630

Harvard College, 1638

People

Bradford, Standish, Winthrop
Gentlemen, merchants, mechanics

Products

| Ships, lumber, pitch, tar, hemp
| Rum, fish

Government, Charter

| Governor and eighteen assistants
| General Court, or annual assembly

Question the pupils, thus:

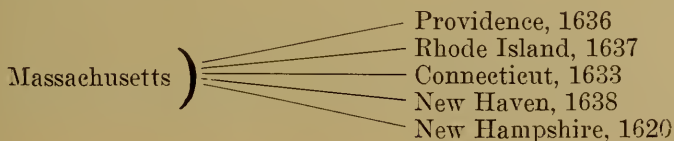
Why did the Puritans leave England?

Why did the settlers develop ship building and trading?

Where did they sell the fish? The lumber?

Have the pupils amplify the topics on the board. Let them study the outline visually as in the case of Virginia.

Deal very briefly with the other New England colonies. Tell stories about Roger Williams, Anne Hutchinson, and the religious dissensions in Massachusetts. Let the pupils read up the topics in their histories. Indicate how the other settlements spread from Massachusetts as follows:



Give a short account of Maine. Do not ask the pupils to make a formal study of the outline. Use it simply as a guide for their reading.

The history of Pennsylvania centers on the life of William Penn and the Quakers. Tell stories about them, give accounts of their friendly relations with the Indians, and let the pupils read about them. Draw a map on the board to locate the early settlements and the surrounding colonies. Point out the difference between the Quakers and the settlers on either side of them. After Pennsylvania, give one or two lessons on the conquests of the English in 1664. Let the pupils tell why the Swedes and the Dutch did not have so good an opportunity to stay and spread, why the English had a better

grasp along the Atlantic coast, and how their method of settling helped them. After reading and discussion by the pupils, write the following on the board:

New York, (1609)	} 1664
New Jersey, 1664	
Delaware, (1623)	
Pennsylvania, 1681	

Call upon the pupils to give a brief account of each of the colonies. Then let them study the list formally.

(b) *Seventh and eighth years.* Present colonisation by the English in the manner suggested above, but more briefly, by groups and topical outlines. In addition take up (1) the industrial conditions in England, (2) the religious intolerance and persecution, and (3) the wars on the Continent. Draw a village on the board and map out the houses, manor, and fields. Question the pupils, thus:

Suppose there are about 200 people engaged in farming.
 What would happen if all the land was turned over to sheep raising?
 How many men are needed to raise a large flock of sheep?
 What would the rest of the men do?
 Suppose other farms were turned over to sheep raising?
 Why should the lords want to raise sheep?

Emphasise the change by the following questions:

Suppose this class room formed part of the village, and the floor the farms cultivated by you.
 How many would be out of work if only two were needed to watch the sheep?
 Why are fewer men needed in grazing?

Point out that these changes forced hundreds of men to seek a livelihood in the New World.

Give some account of religious persecutions in England and Europe. Tell how the Puritans or Separatists wanted to form congregations which could worship apart from the Church or State religion, and how they wished to separate State and Church. Draw a diagram like the following to show the union of Church and State:



Question the pupils, thus:

What if some did not follow the state religion?
 Suppose two states had different religions?
 How would the people in a conquered land fare?

Show how the union of Church and State assumed immense proportions in the Thirty Years War, in which the Hapsburgs of Austria and Spain fought against Sweden and some of the German States. Let the pupils read about Tilly, Wallenstein, Gustavus Adolphus, and Richelieu. Point out the effects of the war on the land. Emphasise the fact that the years of the war correspond closely with the period of colonisation, and that the general unrest set men thinking of new lands and new homes.

In English history, direct the pupils in reading on the following topics:

The Elizabethan Age, 1558-1603

Growth of London as a commercial center
 Growth of English industry and commerce
 Use of chimneys, bedding, glass, etc.
 Exploits of Drake, Frobisher, Hawkins, and Raleigh
 Defeat of the Spanish Armada, 1588
 Literature—Spenser, Shakespeare, Bacon
 The Reformation and Revival of Learning

The Stuart kings—James I, Charles I, Charles II, James II

The idea of the divine right of kings
 The idea of representative government
 Conflicts with (1) House of Commons, and (2) the Puritans

Execution of Charles I, 1649
 Cromwell, the Commonwealth, and the Protectorate,
 1649-1660
 Navigation Act of 1651, and the wars with the Dutch
 Revolution of 1688

After the pupils have read on the different topics, let them trace the growth of English commerce, the naval supremacy of the English, the increased powers of Parliament, etc. Ask the class to select the important events or phases under one of the suggested heads. Compare the government with government in the colonies and with present government.

Let the pupils outline the growth of commerce in the colonies. Let them read about the activities of the colonies, etc. By means of a map show the difference between the groups of colonies, in climate, resources, activities, etc. Have the pupils point out routes of commerce. Question them as follows:

Name some of the products of the northern colonies.

Of the southern. Of the middle.

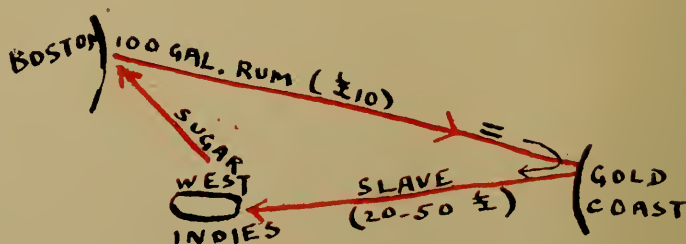
Where would the New England States send fish, cereals, woolens?

What would they get from the South? From the West Indies?

How would they get beaver and other skins?

Where was most of the tobacco sent?

Let the pupils point out the routes of the coast trade, the West India trade, and the transatlantic trade. Show one form of trade, the rum-molasses-slave route, by the following diagram:



Let the pupils work out other routes and tell what was sent and what was received.

Take up the question of labor in the colonies. Contrast slavery with the system of indenture by means of the following outline:

Slave	Indentured servant
Cost, £10-£50	Cost of passage, £6-£10
Life service	Service for about 5 years
Cheaper to keep	Treated better

Lead the pupils to fill out the comparison as follows:

Where did slavery flourish? Why?

Who gave better service? Why?

Why could not the Indians be used as laborers?

Tell the class stories about the kidnapping of children for indentured service, and the shipping of criminals to the new country. Note the following to show the improvements in agriculture and manufactures, and the increased demand for labor:

Smelting furnace was erected near Lynn in 1643.

Joseph Jenks received a patent for the manufacture of scythes, 1646.

First sawmill was erected at Salmon Falls, N. H., 1663.

Write the topics on the board and let the pupils enumerate manufactured articles, as, nails, agricultural implements, firearms, anchors, etc., boats, ships, etc. Trace the Navigation Acts to this increased activity, and to the resulting competition with the mother country. If necessary, spend several lessons on these topics.

2. The Dutch. (a) *Fourth year.* The home state. Treat the history of New York by means of illustration, story and reading. Take up such topics as, the discovery of the Hudson, trading with the Indians, customs of the Dutch, the governors, legends of the Hudson, etc. Do not attempt any formal study.

(b) *Fifth and sixth years.* Locate the settlements of the Dutch by means of the following map:

Question the pupils as follows:

Who discovered the Hudson River?
Why did the Dutch settle here?

Mark out and name the trading posts as you discuss and question. Tell the pupils or let them read about the grants given to the 'patroons' to encourage farming, and how the difference of interests between them and the traders, artisans, and farmers led to Leisler's Rebellion in 1689. Take up such topics, as, settlement of New Amsterdam, purchase of Manhattan Island, rule of Peter Stuyvesant, surrender to the English, etc.

After a few lessons like the above, let the pupils study the following outline:

New York

Henry Hudson, 1609

New Amsterdam settled, 1623

Name changed by English to New York, 1664

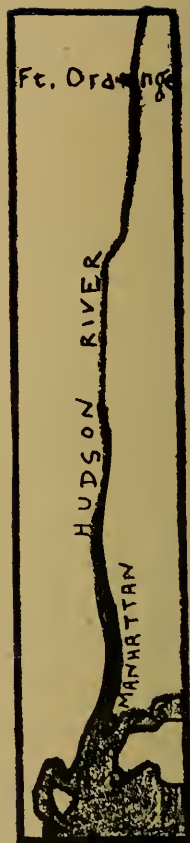
People

| Peter Minuit, Peter Stuyvesant, Leisler,
| Captain Kidd

| Patroons, traders, artisans, farmers

Products, furs, wheat, flour

Government, Proprietary, then royal



Let the pupils expand each of the topics. Question the class, thus:

What settlements were north of New Netherland? South?

Why did the English claim the land?

Why should they want New York?

How was Leisler's Rebellion like Bacon's?

Have the pupils study the outline visually. Call upon them to give an account of the Dutch settlements, and of the rivalry between the English and the Dutch. Give a date and have pupils tell the event. Name events and let pupils give the date.

(c) *Seventh and eighth years.* Present briefly the rise of the Dutch Republic and the rivalry on the seas between the Dutch and the English. Let the pupils read about the Navigation Act of 1651, and have them tell how it operated against the Dutch. Point out that the naval wars with the Dutch were the results of England's growing commerce and her expansion as a seafaring nation. Have the pupils compare the reasons for the English settlements with the reason for the Dutch settlement.

3. The Spanish and the French. (a) *Fifth and sixth years.* Draw a map of North America on the board. Let the pupils note the areas settled by the French and those conquered by the Spanish. Mark on the map the following cities: Quebec, 1608; Montreal, 1609; Detroit, Louisiana; and for the Spanish, St. Augustine, 1565. Question the pupils as follows:

Why do we find the French along the Mississippi?

Why were their stations so far apart?

What did they do at these stations?

Why did the Spanish overrun Mexico and South America?

Point out the effects of fur trading on the development of settlements. Compare the widely distributed posts with the compact English settlements. Let the pupils read about the French missionaries and explorers, about the establishment of St. Augustine, etc.

(b) *Seventh and eighth years.* Tell the pupils or let them read about the struggles between Spain and the Netherlands, and the decline of Spanish power on the seas. Take up the persecutions of the Huguenots, and the temporary relief with the Edict of Nantes. Give some account of and let the pupils read about the reign of Louis XIV, the War of the Palatinate, 1688-1697, and the War of the Spanish Succession, 1701-1714. Show how the devastation of the Palatinate sent thousands of Germans to Pennsylvania, just as the continued persecution of the Huguenots in France sent many to the Carolinas.

III. ENGLISH SUPREMACY

1. Indian wars. *Fifth and sixth years.* Let the pupils read about Indian life and customs. Compare the French treatment of the Indians with that of the English. Question the pupils as follows:

How did the Indians live? Where did they get food?
 How were they useful to the English at first?
 Why did not the English have to depend upon them later?
 What trade was carried on with the Indians?
 Why did the French cultivate the friendship of the Indians?
 Why did not fur trading crowd out the Indians?
 Why did farming, agriculture and manufacturing?

Show how the Indians were gradually crowded out of the lands which belonged to them and how they tried to drive out the English. Let the pupils read about the Pequot War, 1635-1637, and King Philip's War, 1675-1678. Do not attempt any formal study of these events.

2. Intercolonial wars. *Fifth and sixth years.* Let the pupils read about the three wars, King William's, Queen Anne's, and King George's. Present them simply as offshoots of troubles in Europe. For the French and Indian War, draw the following map on the board:



Explain and question as follows:

In what direction would the English expand?
 Why did they not bother with the interior before?
 On what grounds did they claim the land?
 On what grounds did the French claim the land?

Show how the French advanced to the other side of Lake Erie, and met with the English at Fort Duquesne, 1754. Let the pupils read about Braddock's defeat.

Draw the following map on the board:



Point out the French strongholds. Question as follows:

What did Louisburg protect? Ticonderoga?
How could the English reach Ticonderoga? Quebec?
Why did the English have a better chance of winning?

Let the pupils read about the attempts of the English to gain these strongholds. Point to the map and outline the expeditions. Refer to the map to show the positions of France and England before the war and after the Treaty of Paris in 1763.

Write the following outline on the board:

French and Indian War

Ohio Company formed by Virginia planters, 1750
Defeat of Braddock, 1755
Fall of Quebec, 1759
Treaty of Paris, 1763

Have the pupils tell about each of the topics. Question them:

Why was the Ohio Company formed?
What was their claim?
What was the French claim?
Name some of the strongholds of the French.
Why did the Five Nations aid the English?
What were the terms of the treaty?

Direct the class in a formal study of the outline, thus:

Read over the topics.
Read over the first two. Repeat them softly.
Look at them again. Close eyes.
Try to repeat the topics. Open eyes.

Call upon pupils to come before the class and recite the outline. Ask others to tell about the events more fully.

3. Attempts at union. *Fifth and sixth years.* Draw a map on the board and indicate roughly the New England colonies, the middle colonies, and the southern. Have the pupils point to the map and describe the land, the climate and the people. Question them, thus:

How did the occupations in the north differ from those in the south?
How was one of use to the other? What trading went on?
Which colonies first grouped themselves together?
How did the Indian Wars help unite the colonies?
What other wars made them think of themselves as one?
Why?

Let the pupils read about the New England Confederacy, 1643; the Congress at Albany, 1754, and Franklin's plan of union. Show how the natural position of the colonies with the Alleghanies on one side and the Atlantic on the other would tend towards a unification of the people.

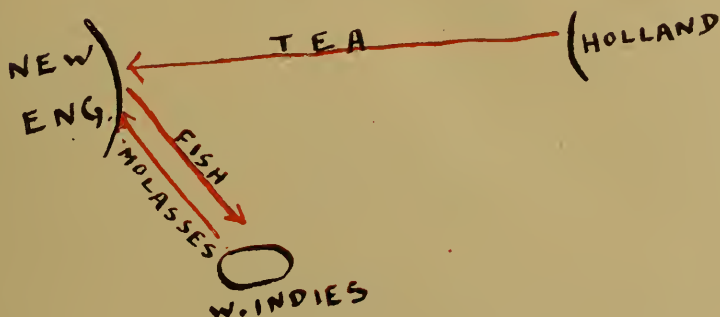
4. European history. *Seventh and eighth years.* Take up the supremacy of the English in America somewhat in the manner indicated above, but more briefly by means of map study, topical outlines, and reading. In addition trace briefly the activities of the English during the Seven Years' War in Europe and in India under the direction of William Pitt.

IV. COLONIAL SUPREMACY

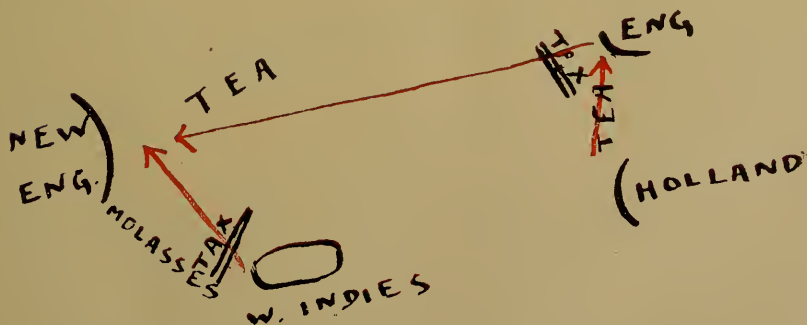
1. **Conflicting interests.** *Sixth through eighth years.* Take up the commerce of the colonies, and England's attempts to control it. Question the pupils:

Where did New England send the dried fish?
 Where did the sugar and molasses come from?
 Explain how they were used.
 How was the tea obtained?

Indicate the routes of commerce by means of the following diagram:



Show how the Navigation Acts would change these routes, thus:

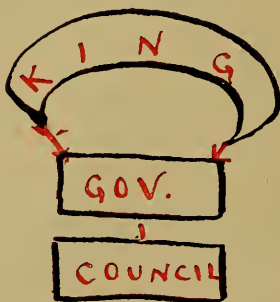


Question the pupils as follows:

Why did England want all goods to go to her ports?
 How would tax on molasses affect the rum-slave trade?
 How did the colonists evade the Trade Acts?
 What is smuggling? Why were not the colonists punished?

Show how manufactures were prohibited by these same Acts. Let the pupils read in their histories about the topics presented.

Explain the plan of government in the colonies. Draw the following diagram on the board:



Question the pupils as follows:

Who appointed the governor? The council?
 Who paid the governor's salary? How?
 How was a law passed?
 How could a governor be forced to sign a law?

Point out that the governor and his council represented the English government. Show that he was practically without power. Have the pupils tell the effect of the presence of troops from England. Let them explain why the colonists would oppose such a move. Let the pupils read about the effects of the French and Indian War on the self-confidence of the colonists.

2. New policy of colonial control. *Sixth through eighth years.*
 Let the pupils read about the English plans of control. Let the pupils select the leading topics and write them on the board, thus:

Navigation Acts were to be enforced
 Taxes were to be raised to meet expenses of government
 Troops were to be established in America

Question the pupils on each of the topics:

- How were the Navigation Laws to be enforced?
- What was a 'Writ of Assistance'?
- How was money to be raised to pay for the troops?
- How was the Stamp Act received?
- How was money raised in the colonies before?

Trace the succession of measures and their results and show them by means of the following:

Taxation of the Colonies	
The Stamp Act, 1765	Riots and protests
Repeal, 1766	
Tax on glass, tea, colors, paper	Protests, letter sent by Massachusetts
Repeal-tea tax	Tea party
Troops in Boston	Boston massacre, 1770

Point out that each act on the part of England was resisted by the Colonies, and that England was finally driven to send troops. Let the pupils read about and discuss the topics. Show how the further attempt of England to coerce Massachusetts by means of the Five Acts, led to a further unification of the colonists and the meeting of the First Continental Congress at Philadelphia, in 1774.

Write the following topics on the board:

Navigation Acts
 The Stamp Act, 1765
 Revenue tax
 Tea tax
 Use of troops
 Boston massacre, 1770

Call upon pupils to explain each of the topics. Question them:

- Why was the Stamp Act passed?
- How was it received? What was the result?
- What other tax was substituted? What was the result?
- What action did Boston take?
- What did England do?
- What other measures were taken to punish Massachusetts?

After the pupils have recited and discussed the topics, let them study them formally.

3. The Revolution. *Sixth through eighth years.* Let the pupils read about the coming of Gage of Boston, his attempt at military government, and the first skirmish at Lexington in 1775.

Take up the fighting around Boston and the meeting of the Second Continental Congress in 1775. Have the pupils explain why independence was sure to be declared. Read parts of the Declaration of Independence, and have the pupils read. Direct and question them as follows:

Look for the protests against military occupation.
 What taxes were imposed 'without our consent?'
 What mention is made of the 'Five intolerable Acts?'
 Where is there reference to the Hessians?
 Which Congress is 'in general Congress assembled?'

Show the effects of the Declaration in the change of name 'Colonies,' to 'United States of America,' and in the preparations for serious war.

Draw the following map on the board:



Explain and question as follows:

Why did the first battles take place around Boston?
What could the English do if they controlled the Hudson?
Where would the troops have to go to control the Hudson?
Now look at the southern states.
Where would the English begin to attack them?

Let the pupils read about the operations around New York and New Jersey. Refer to the map and trace Burgoyne's march and his defeat. Show how his surrender broke up the plan to cut the colonies in half and how it secured aid from France. Take up the campaign in the South. Follow the retreat of Cornwallis and let the pupils read about his defeat at Yorktown. After several lessons, let the pupils study the following events in a formal manner:

First Continental Congress,	1774
Second Continental Congress,	1775
Battle of Bunker Hill	1775
Declaration of Independence,	1776
Surrender of Burgoyne,	1777
Surrender of Cornwallis,	1781
Treaty of Paris,	1783

4. The Constitution. *Sixth through eighth years.* Let the class read about the financial difficulties of the Continental Congress. Question the pupils as follows:

Where does the government get money to-day?
How is the city able to pay firemen, etc.?
What was a great weakness in the Continental Congress?
What is paper money? When is it good?

Tell about the Articles of Confederation. Let the pupils read parts of the Constitution to find out what the Americans were aiming at. Have them note the Preamble, and some of the powers of Congress. Ask them to compare some of these powers with the lack of power in the Continental Congress. Let them read how the people are represented in Congress, and how small states are represented equally with large states. Have them turn back to the history proper and read how the Constitution was fought over and finally adopted.

V. THE UNITED STATES

1. Administrations. *Sixth through eighth years.* Have the pupils read over the history silently. Ask them to note the important events. Call upon pupils to name them, and write them on the board as they are given. Question the class upon the topics, have pupils tell about them, and call upon some to read relevant parts in the history. Let them discuss the topics with books, and later without books. If the topics are connected in any way with previous events, bring out these connections. Illustrate with blackboard map whenever necessary. For example, take the administration of Andrew Jackson. Have the pupils read over the administration and select what they consider the important events. Write them on the board as follows:

Andrew Jackson, 1829-1887
The Spoils System
Nullification Act of South Carolina
Overthrow of the United States Bank.

Question the pupils somewhat as follows:

What were the industries of the North?
Why did the North want a high tariff?
Why did the South want a low tariff?
What did the South raise?
When did cotton become of great account?
What statesman upheld the right of the Union to levy taxes?

Show how the introduction of slavery and the invention of the cotton gin had made cotton one of the leading products of the South. Emphasise the fact that, engaged in raising raw products, the South wanted to buy manufactured goods as cheaply as possible. In a similar manner the establishment of the United States Bank by Hamilton, and the effect of its overthrow can be taken up.

2. Wars. *Sixth through eighth years.* Treat the wars very briefly. Outline the plan of campaign by means of a map, note the important positions, and let the pupils read about the causes of the war, some of the fighting which took place, and the results. Do not go into details and do not have the pupils memorise many dates. In

the War of 1812, take up chiefly the causes, Battle of Lake Erie, and the Victory at New Orleans. In the War with Mexico, point out on a blackboard map the campaigns of General Taylor and General Scott. Lay chief stress on the causes of the war, the result, and the questions taken up in the Wilmot Proviso. In the Civil War, on a large map show (1) how the North controlled the Mississippi and blockaded the coast, (2) how Grant took Richmond, and (3) how Sherman marched to the sea. As the result of a long contest between the planters of the South, and the manufacturers of the North, trace the growth of cotton raising, the continued agitation against the tariff, and the attempts on the part of the South to control Congress for this purpose, as shown in the Missouri Compromise, the Wilmot Proviso, the Compromise of 1850 and the Kansas-Nebraska Bill. On the industrial side, show how the North actually grew more prosperous during the war by reason of increased exports of wheat, corn and cattle, and by greater activity in woolen manufactures, and in iron and steel products. Explain what the South meant by the expression, Cotton is king. Let the pupils tell why the war made the South continually poorer. For formal study take, Secession of the southern states, 1861; Monitor and Merrimac, 1862; Emancipation Proclamation, 1863; Gettysburg and Vicksburg, 1863; Sherman's March to the Sea, 1864; Appomattox, 1865.

3. Intensive study. *Seventh and eighth years.* Have the pupils trace movements, follow up topics, and construct outlines. Bring out the basic causes back of a series of events. Take up (1) the tariff and slavery, (2) industry and invention, (3) transportation and communication, (4) money and finance, (5) national expansion, (6) political parties, and (7) education and literature.

(a) *The tariff and slavery.* Have the pupils bring labels which tell 'Made in Germany,' 'Made in England,' etc. Ask them to take out their penknives and tell where the knives were made. Question the class:

How did the knives, cloth, etc., get here?

How can we help American manufacturers sell knives?

Who gets the money paid for taxes on imported goods?

Who pays such taxes? Who pays in the end?

Read some of the articles of a modern tariff. Explain the difference between a protective tariff and a revenue tariff. Let the pupils use their books. Question them further:

Why did South Carolina protest against the tariff in 1832?
What did Jackson do? Look up what took place.
Look up other conflicts about the tariff.
How could the South prevent a high tariff?
Look up her attempts to get more states admitted as slave.

As the pupils name them write the following topics on the board:

Missouri Compromise, 1820
Nullification Act of South Carolina, 1832
Wilmot Proviso, 1848
Compromise of 1850
Kansas-Nebraska Bill, 1854
The Civil War, 1861-1865

Have the pupils explain why the South needed more land, how it tried to get more states admitted as slave so as to have more votes in Congress, and how the aim of it all was control of the tariff and legislation favorable to the planters. Show that slavery was not really the main issue, and that Lincoln, when elected, had promised not to interfere with slavery. Point out that the present discontent, due to 'high cost of living,' is a phase of the same movement, with different parties.

(b) *Industry and invention.* Have the pupils look up the inventions which they consider of importance. Write the names on the board and add others, thus:

Samuel Slater introduced the Arkwright spinning machines, 1790
Eli Whitney invented the cotton gin, 1793
Robert Fulton built his steamboat, 1807
Joseph Smith built a grate to burn hard coal, 1812
Cyrus Hall McCormick patented his reaper, 1834
Elias Howe patented the sewing machine, 1846

Let the pupils read about the inventions and their effect on industry. Show how the North profited by most of them. Ask the pupils to explain why the cotton gin made slavery profitable in the South, and why improvement in manufacturing increased the white population in the North.

(c) *Transportation and communication.* Have the pupils appreciate present conditions and then let them compare these conditions with the state of affairs in former days. Question them as follows:

How will you order goods down town? How else?

How will they reach you? How did they get to the store?

Name important water ways. Railroads.

Compare the condition of New York before and after the construction of the Erie Canal. Illustrate the canal as follows:



Show how freight per ton from Albany to Buffalo was reduced from \$120 to \$14. Let the pupils explain why the population of New York increased, and how the West was better able to develop. Have them trace the growth of the railroad system. Take up the use of postage stamps by the Post Office in 1847, the erection of the first telegraph by Morse in 1844, the laying of the Atlantic Cable by Field in 1858, and the use of the Bell telephone in 1877. Show how the men who control the railroads can shut out competition on the part of small producers.

(d) *Money and finance.* Ask the pupils to find when the pine-tree shilling was coined, and tell about the kinds of money used by the Colonies. Have the class read about the paper money used during the Revolution. Show the class a dollar bill. Question them:

Why will this buy a dollar's worth of goods?

Why were the bills in the Revolution not worth much?

Who wants to read what is on this bill?

Let the pupils read about the establishment of the mint in 1791 and have them trace the beginning of the national bank system. Explain why national bank notes are good. Take up the different panics and ask the pupils what lies back of a commercial crisis. Discuss with the class how Congress can raise money, and let the pupils read the powers of Congress in this connection as specified in the Constitution.

(e) *National expansion.* By means of a map show what constituted the United States in 1783. Have the pupils look up the additions to 1845 or 1848. Mark them off on the map. Let the class tell what natural resources are to be found in the different acquisitions. Have the pupils explain what other benefits accrued to the United States. Take up the rest of the acquisitions in the same way. Make a large map on shade or cardboard to show the territorial growth and let it be a part of the classroom furnishing.

(f) *Political parties.* Spend some time on the early political history during Washington's administration. Make clear the meaning of 'strict' and 'loose' construction of the Constitution. Let the pupils read about the policies of the different parties. Write the following outline on the board:



Point out that the old Republican party of the time of Jefferson is the present Democratic party.

(g) *Education and literature.* Give the pupils some idea of what education means. Question them as follows:

Why do you go to school?
What will you be able to do when you leave school?
What do you intend to work at?
How will you prepare for such work?

Let the pupils read about the establishment of schools in the colonies, first in New England and later in the other colonies. Show how the rise of industry and commerce has made new demands upon the school. Compare the instruction in the three R's with what is needed in the trades and industries, as, iron working, weaving, building, etc. In literature, take up in a systematic manner, Washington Irving, Cooper, Longfellow, Poe, Bryant, Whittier, Lowell, Holmes, etc. Read to the class and let the pupils read interesting selections of the author taken up for the week. Let the pupils read for appreciation and enjoyment, chiefly. Write on the board the name of the author, and some of his most important writings.

On each of the above series of topics spend several lessons if necessary. After reading, discussion, illustration and questioning, let the pupils study in a formal manner about five or six of the most important events in the series.

4. European history and world relations. *Seventh and eighth years.* In addition to the topics in American history, present such history of England and Europe as is necessary to make them more clear. Take up such topics as, the French Revolution, the rise of Napoleon, the conflict between the French and the English, etc. Deal briefly with the rise of Prussia, the unification of Germany, the independence of Italy, and recent developments in Russia, China, and Japan. Discuss the position of the United States as a world power. Explain the Monroe Doctrine, the meaning of 'the open door' in China, and the effects of the rivalry in commerce between countries. Show the use of the navy, and emphasise the increase in friendship between England and America, and the growing importance of Japan in the East. Illustrate the importance of the Panama Canal, and show the workings of the Hague Tribunal.

VI. CIVICS

1. Local government. In the beginning of the term announce an election of class officers. Write the names of the offices on the board, thus:

Election of officers, next Friday afternoon

Class President

Vice-President

Secretary

Treasurer

On the afternoon appointed, explain to the class how to nominate and vote. Let pupils nominate candidates for president. Write the names on the board. Pass blank papers to the pupils. Instruct them to vote for their candidate, 'I vote for ———,' and to sign their name at the bottom. Have each candidate name two tellers, one to mark the votes on the board as they are called out, and one to watch and see that the votes are properly marked and counted. Collect the votes, count the votes and the voters, and then slowly open each vote and read out the name of the candidate. As you read, have the teller assigned to the name mark the vote on the board. The vice-president may be elected the same way, and the other officers elected on the following school day. Or, the one receiving the highest number of votes may be elected president, the one with the second highest number, vice-president, and so on. If the vote is close, as usually happens, let the class vote again for the two candidates who have almost the same number of votes. Allow applause and the usual orderly comment and excitement.

Consult with the class officers or 'Committee,' offer names for a 'Sanitary Squad,' monitorships, etc., and let the Committee select the pupils for these positions. Call these officers the Sub-Committee. In the higher grades meet with the Committees a day or two after their election and talk over with them their powers and duties. Let them write them out. After a few days submit them to the class. Discuss them in class, and in a day or two let the class vote on the different clauses. Have a copy of this Constitution neatly framed or mounted and hung in some part of the room. If there already is a Class Constitution, consult with the Committees regarding changes or improvements, present these to the class, and vote as suggested. If possible, let each pupil have a copy of the Class Constitution. In the seventh and eighth years let the class president appoint nine members of a court. Have the powers of the court outlined, discussed and voted upon as in the case of the Class Constitution.

In the formation of the Constitution let the Committees read carefully the Constitution of the United States, and notify the class to do the same. Let them word the different clauses on the model of the United States Constitution, thus:

CONSTITUTION OF THE CLASS OF 8B1

PUBLIC SCHOOL 86, 1912

We, the Pupils of Class 8B1, in order to form a more perfect union, establish justice, promote the general welfare, and secure the blessings of order to our friends and ourselves, do ordain and establish this Constitution for the Class of 8B1.

ARTICLE I

Section 1. All legislative powers herein granted shall be vested in a Class Committee which shall consist of a President, Vice-President, Secretary, and Treasurer; and in a Sub-committee, which shall consist of a Sanitary Squad, and Monitors properly selected and appointed.

Section 2. The Class Committee shall be composed of members of Class 8B1 in good standing, elected every two months by the pupils of Class 8B1. The Sub-committee shall be composed of the three members of the Sanitary Squad, and of Monitors, all of whom shall be members of Class 8B1 in good standing; and they shall be nominated by the Class Teacher, selected by the Class Committee, and appointed to duty by the Class President.

Section 3. Upon written request signed by three members of Class 8B1, any officer must be tried for impeachment by the members of Class 8B1. No person shall be convicted without the concurrence of two thirds of the members present. Upon conviction, the office shall be declared vacant, and a new election ordered. If the President be convicted, the Vice-President shall take his place.

Section 4. 1. The Class Committees shall have power to collect money and provide for the general welfare of Class 8B1;

2. To regulate intercourse with other classes and other schools;

3. To promote the progress of art and science and instruction therein by securing specimens, maps, illustrations, clippings, pictures, and whatever will assist in instructing the members of Class 8B1 and decorating the room;

4. To receive complaints, suggest improvements, and forward them to the Class Teacher;

5. To arrange and prepare for entertainments, athletic meets, outings, and Class Day;

6. To make rules for the government and regulation of Class 8B1 and the members thereof;

7. To make all laws which shall be necessary and proper for carrying into execution the foregoing powers and all other powers vested by this Constitution in the government of the Class of 8B1, or in any department or officer thereof; provided such laws meet with the approval of the Class Teacher.

Section 5. No money shall be drawn from the treasury, but in consequence of appropriation made by law; and a regular statement and account of the receipts and expenditures of all Class money shall be published from time to time.

Section 6. The Committee shall assemble at least once in every week, and such meeting shall be upon a day set by the Class President. The secretary shall make a record of the proceedings, which record shall be open to inspection by any member of Class 8B1.

ARTICLE II

Section 1. The executive power shall be vested in a President of the Class of 8B1. He shall hold office during the term of two months, or during the existence of the Class within the term for which he has been elected.

Section 2. 1. He shall have power to name the day on which any class election shall be held;

2. To name the day on which the weekly meeting of the Class Committee shall be held;

3. To call for a special meeting of the Class Committees at any time;

4. To appoint to duty members of the Sub-committee;

5. To assign to special duty any members of the Class Committees at any time that he sees fit.

Section 3. He shall, upon the absence of the Class Teacher, assume full charge of the Class of 8B1; and any action taken, or mark given, or assignment made by him while in charge shall receive the serious consideration and support of the Class Teacher.

Section 4. In any meeting of the Class Committees, he shall count as two votes.

ARTICLE III

The Class Committees, whenever two thirds of both Committees shall deem it necessary, shall propose amendments to this Constitution, or, on the application of any three members of the Class of 8B1, shall call a meeting of the Class for proposing amendments, which, in either case, shall be valid to all intents and purposes, when ratified by three fourths of the members of Class 8B1 present; provided the Class Teacher approve.

ARTICLE IV

The Class Teacher shall have power of impeachment of any officers of Class 8B1; and, for good cause, shall have absolute power of removal.

Consult with the class officers and have them formulate regulations to govern entrance, dismissal, conduct in the halls, in the yard, on the stairs and on the street. Have them arrange for care of clothing, care of supplies, correction of papers, assignments of class work, inspection of desks, books, etc. Send the class president to the principal of the school and arrange for a day on which the Class Committee can find what arrangements the principal has made for entrance, dismissal, conduct in the yards, etc. In such a case see the principal and explain matters so that he will be prepared properly to receive the president and his committee. Have the regulations announced to the class and posted where all may read them. Use class government of this kind as a means of instruction in civics and of developing class spirit, and not as a device to shift responsibility of class discipline.

In a series of lessons present the different departments of the town or city government. Begin with some department which is familiar to the children. Take, for example, the police department. In the lower grades show pictures of policemen, of the station house, of the jail and prison, etc. Question the pupils, thus:

Who has seen policemen? Who knows any policeman?

Who has seen a policeman do anything? What?

What do they do at night? In the daytime?

What do they do at parades? At meetings? At fires?

What do policemen wear? Why?

Let the pupils read about policemen, their life on the streets, in the station house, in the courts, etc. Present vividly the life of prisoners and impress the nature of crime, even in less degree, as in the case of building fires on the street, pilfering from stands, destroying public or private property, and so on. Trace what happens to a prisoner, in the station house, in the court, in the prison, and after release. In the higher grades take up the police department more fully. Let the pupils read parts of the charter which relate to the police. Get a copy of a police report and present such features as, qualifications necessary to become a policeman, duties of the police, officers, organisations, etc. In much the same manner present other public officials, as, the fireman, the school physician, the nurse, the inspector of the Board of Health, the truant officer, the street cleaner, etc. In the higher grades, let each pupil have a copy or an abstract of the child labor law and the compulsory education law, and have them devote some time to a formal study of these laws.

Let the class read about the three great departments, the legislative, the executive, and the judicial. Procure copies of some ordinances relating to such actions as, report of contagious diseases, removal of garbage, construction of houses, condition of fire escapes, etc. Write the leading features of the ordinance upon the board and let the pupils read and discuss them. Question the class as follows:

What are some of the contagious diseases?

What letter should be written to the Board of Health?

Read the letter. Read the address.

What will the Board of Health do?

What is meant by 'disinfection of the premises?'

In the same way discuss other ordinances which relate closely to the home life of the children. Show where the ordinance is originated, and how it is passed. Take up other duties of the City Council and of the Mayor. In the higher grades let the pupils read portions of the charter which tell of the duties of the Mayor and of the Council, how the officials are elected, how long they serve, and the like. In a similar manner deal briefly with the court, the judge, and the jury.

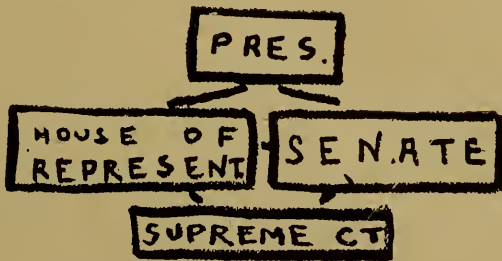
2. State and national government. In the lower grades show pictures of the letter carrier, of the post office, and of the different kinds of stamps, money order blanks, etc. Let the pupils read about the postal system. Question as follows:

Who pays the letter carrier?

Where does the money come from?

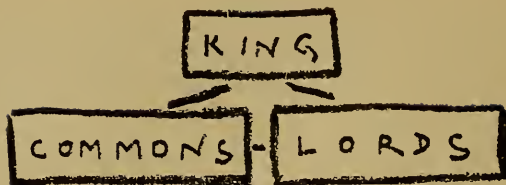
How is the money raised? By what right?

Let the pupils read those parts of the Constitution which deal with the powers of Congress. Take up some specific bill and show how it may become a law. Illustrate the three departments of government as follows:



Let the pupils read about the formation of the Constitution, why the Senate was constituted as it is, and how the Constitution differed from the old Articles of Confederation. In the higher grades show how government officials are elected or selected. At election time secure as many blank ballots as possible. Mount some and keep others for class use. Let the pupils read the ballots. Explain the process of voting. Point out that the people do not vote directly for the President, and show this by means of sample ballots. Let the pupils read those parts of the Constitution which deal with the election of the President, Senators and Representatives. Present briefly the selection and the duties of the Supreme Court. In much the same manner take up the departments of the state government.

In the higher grades let the pupils read about and discuss the government of Great Britain. Illustrate the departments of government as follows:



Have the pupils compare the powers and duties of King with President, House of Lords with Senate, and House of Commons with House of Representatives. Show the position of Prime Minister in English politics. Show the rise of representative government in England. Deal briefly with the great legislative bodies, (1) the Witan, (2) the Norman Great Council, (3) Simon de Montfort's Parliament, and (4) the Model Parliament; and with the great state papers, (1) the Charter of Liberties, (2) the Magna Charta, (3) the Petition of Right, (4) the Bill of Rights, and (5) the Reform Bill of 1832. In a series of lessons let the pupils read about and discuss the conditions which gave rise to the popular assembly, the nature of its work, and its comparison with the present Parliament. Outline the contents of the great state papers. Let the pupils read parts of the American Declaration of Independence, and compare some of its sections with those of the English documents. Present briefly similar developments in representative government in Germany, Japan, Russia, and China.

VII. USE OF THE TEXT-BOOK

1. Reading. *Fourth and fifth years.* Conduct the lesson as a typical reading lesson. Write the difficult words and important names and dates on the board. For example, a reading lesson on Bacon's Rebellion would yield words like the following:

Tyranny of Governor Berkeley
 Bacon's Rebellion in 1676
 House of Burgesses
 to show loyalty
 a small volunteer force

Call upon some of the pupils to pronounce the words. Tell what the words mean. Illustrate the meaning in sentences and have

the pupils do the same. Let the pupils read either aloud or silently. After the pupils have read a thought whole, question them as follows:

Who was Governor Berkeley?
What did he do? Why?
Why were the people compelled to defend themselves?
Who was Nathaniel Bacon?
What did he do? Why?
How was the rebellion suppressed?

Then call upon pupils to tell in a series of sentences about (1) Governor Berkeley, (2) Nathaniel Bacon, (3) the complete event from beginning to end. Simply give the topic and say nothing till the pupil has finished. Allow no prompting. Let several pupils express themselves on the same topic.

2. Topical study. *Sixth through eighth years.* Conduct the reading lesson somewhat in the manner suggested in the preceding paragraph. In addition let the pupils select the topics of the paragraphs read. After a paragraph has been read, question and direct as follows:

What person or event is taken up in the paragraph?
What happened? When? Where? Why?

As the pupils give topics and topic sentences, write them on the board with whatever slight changes are necessary, thus:

Governor Berkeley was chosen in 1642.
Indians burned houses and murdered many Virginians.
Nathaniel Bacon led a volunteer force against them.
He took Jamestown and drove out Governor Berkeley, 1676.
Bacon died and Berkeley hanged many of the rebels.

With the topics before them, have pupils tell about the rebellion. Let them tell 'Why' the different actions were taken, and what resulted. Call upon the pupils to describe 'How' the events took place, and 'What kind' of persons were concerned. As the pupil is reciting, do not interrupt or prompt him in any way. At the conclusion, let several tell the story briefly, from beginning to end. In such topical study, if the paragraph is too long or too complicated, divide it into a number of thought wholes of from ten to

fifteen lines each, and treat each one separately. Take from five to ten of such thought wholes, let the pupils select the topic in each one, write them on the board, and let the pupils amplify them in the manner indicated.

3. Dramatic interpretation. *Sixth through eighth years.* Let the pupils read about a topic, either silently or aloud. Then direct them to impersonate some particular person or type. Suggest situations somewhat as follows:

(a) *Discoveries and explorations*

As Columbus, what would you have done?
What would you have told the sailors?
How would you have tried to secure release from chains?
Suppose you were John Smith?
How would you have secured supplies from the Indians?
How would you have made the settlers work? How else?

(b) *Colonisation*

Imagine that you are an English settler.
Explain why you are going to Virginia.
Tell what faults you find with the colony.
How would you try to improve them?
Take the place of Governor Berkeley and explain.
Put yourself in the place of Nathaniel Bacon and explain.
As Peter Stuyvesant, what would you have done? Explain.
As an indented servant what fault do you find?

(c) *English supremacy*

As a Virginian, what right have you to land in the Ohio Valley?
Put yourself in the place of a French trapper, and explain.
Put yourself in the place of an Indian, and explain.
How would you have planned to take Quebec?

(d) *Colonial supremacy*

Why are you a New England smuggler?
What right have you to evade the British customs?
Take the place of a workman in England, and explain.
What would you have done if men took your tea and spoiled it?
Suppose you sent a man to collect taxes and he was tarred and feathered?

Imagine that your friend was killed at Lexington. Explain.
 Suppose that you were Governor Gage. Explain.
 Put yourself in the place of John Hancock, and explain.
 How would you have planned to take New York?
 How would you have planned to take Yorktown?
 Criticise the campaign of General Howe.
 What would you do if you were sent to France to get aid?

(e) *The United States*

As a southern planter, criticise the government.
 As a northern manufacturer, criticise the government.
 Why do not you like to be a slave? Explain.
 What would you have done as President ————?
 Criticise the Missouri Compromise.
 What reasons have you for upholding 'state rights?'
 What have you against state rights?
 Why did you go to the west to settle?
 Criticise the campaign of General ————.
 What would you have done as President Johnson?
 Put yourself in the place of ————, and explain.

In such dramatic interpretation do not allow the pupils to ramble along aimlessly. Restrict the interpretation to a few paragraphs or thought wholes. If necessary, have the class select and discuss the topics as suggested in the preceding. Write topics or topic sentences on the board. Give the class some time to think the matter over. Call upon individual pupils to express themselves on the situation presented.

4. Dramatisation. *Fourth through eighth years.* After the pupils have read and discussed one or more topics, have them present the matter in dramatic form. Write an outline of one or more scenes on the board, thus:

John Smith and Pocahontas

Scene I. John Smith with two Indian guides, and two companions examine the bends of a river.

Smith and one Indian guide go ahead. The others stay back.

The Indian guide in the rear gives a signal. Band of Indians rush out, kill the men in the rear and take Smith prisoner.

Scene II. Smith is bound and brought before Powhatan and his braves.

Powhatan upbraids Smith and complains against the English.

Powhatan orders a brave to lead Smith to the block.

Pocahontas rushes forward. Falls on her knees before Powhatan. She begs for Smith's life, and then falls on Smith's neck.

Powhatan slowly yields.

Let the pupils read over the directions given. Call for volunteers to take the parts indicated. Let them go through the pantomime. Direct and question somewhat as follows:

Now, John Smith, what are you asking your guide?

Indian number one, what is your answer?

Men, what are you talking about as Smith goes forward?

What will you say against Smith, Powhatan?

As the children talk and act, note the expressions used. Write them down. Modify them and work up the dialogue, thus:

Scene I

Smith. Where did you say we could get corn?

Guide I. A short way ahead where the river turns.

Com. I. They said the river turned here.

Smith. Let us go forward.

(To his companions). Do you, my friends, stay back.

Let no one pass from the rear.

(Smith goes slowly forward, looking now to right, and now to left).

Com. II. I like it not. Last night I tossed about and slept but little. I turned to where our leader lay. Methought I saw our guide take up a knife.

Com. I. What, a knife! And did he try—

Com. II. No, no. I rose and stretched myself. He then did hide his knife and roll about as if to sleep. Watch you closely what our guides will do.

(Guide II. moves away. Makes a signal. Gives a shout and runs to meet a band of Indians who rush out. The two companions fight, but are killed. Smith is attacked and overcome. He is tied and led away).

Scene II

(Indian squaws and maids walk forward. Braves follow. Powhatan follows and seats himself. Smith is led in, an Indian on each side).

Powhatan. You come and drive us from our homes. You have stolen our lands. You have killed our people. You have destroyed our fields. And now you must die. Lead him forward.

Pocahontas. (Rushes forward). O, father! (Falls before him). Do not kill him. He is but one. What has he done that you should slay him. Spare him, father. O spare him. (Raises her hands, turns toward Smith). If you kill him my life will go with his. Now, strike, if you must. (Bends over Smith and puts her arms around his neck).

Powhatan. Rise, daughter. Lead him away. You may be right. The Englishman may some time remain our friend.

(Smith is led away. Two groups of Indian maids come forward, one from each side, dancing as they go and singing).

Song. We are Indian maids, careless and free.

And as Indian maids, ever let us be.

(Let music fit words and dance. Any simple, improvised tune will do).

Insist that the pupils speak slowly, and pause after each action. Have the actions gone through first, and let the words fit in and explain the action. Let the dialogue be short. Do not allow lengthy speeches.

Work up dialogues around situations of the following character:

Attack on a Puritan Meeting

Scene. I. Two or three Pilgrims, with guns, go slowly forward, looking to right and left. Pause. Look back and motion ahead.

Band of women come slowly forward. After them come Pilgrims, guarding the rear. All march slowly across front and disappear at side.

Several hymns are heard. Voice of preacher heard. Songs.

Band passes slowly back.

Scene II. As first band comes out, arrows are shot at them. Indians rush forward. Pilgrims step forward, scatter, and shoot. Skirmish keeps up. Several Pilgrims fall. Indians retreat and are slowly pursued.

Women now come forward. Help the wounded. All sing hymn of thanksgiving.

The Boston Tea Party

Scene I. Mob scene. Several men come together and talk violently. Others join them. Still others come. One rises on a chair and addresses them. He tells them about the three ships of tea that are in the harbor.

Scene II. Meeting of citizens. They sit and discuss measures for preventing the tea from being landed. One slowly rises and proposes that a party go and throw the tea into the harbor.

Scene III. Party of men dressed as Indians assemble. Motion and talk quietly. They suddenly run to the dock (row of desks or boxes) climb over the sides of the ship (row of teachers' desks) and hand up boxes which are thrown overboard. Return as they came.

Election Time

Scene I. Gathering of a crowd about a platform. Distribution of circulars. Animated discussion. Arrival of the orator, or stump speaker, who mounts the platform. Speech, punctuated by comments and applause.

Scene II. At the polls. Registering of voters. First officials come and take their places. Policeman walks up and down, and stands near the clerks. Several men (and a few women) enter, answer questions, sign, and depart.

Scene III. At the polls. Voting. Scene is much like the above. Exciting incidents, like attempts at repeating, may be introduced. Policemen carry off ballot boxes. Polls close.

Scene IV. The returns. Crowd waits in public place. Returns are called off. Usual crowd scenes may be introduced, as, blowing of horns, songs, removal of noisy or drunken intruders, etc. Candidate who has been elected comes forward, is congratulated, and make a short speech of thanks.

Dramatic tableaux may be presented, as, Franklin at the Court of France, pleading the American cause; Washington delivering his Farewell Address; a President taking the Oath of Office; and so on. In civics, let the pupils take the part of senators and representatives, or members of the Cabinet, or judges of the Supreme Court, etc. Divide the class into two parts, one, the Senate, and two, the House of Representatives. Have some one introduce a Bill, let it be read, voted upon, passed to the other House, and then sent to the President. Let the class represent the city council, or the state assembly and have them discuss some specific measures. Combine history and civics in this manner. Let the class represent the House of Burgesses in Virginia, at the time of Bacon's Rebellion, or the Council of Nine under Peter Stuyvesant, or the Constitutional Convention. Have the pupils imitate as closely as possible what ever characters they represent.

VIII. CURRENT EVENTS

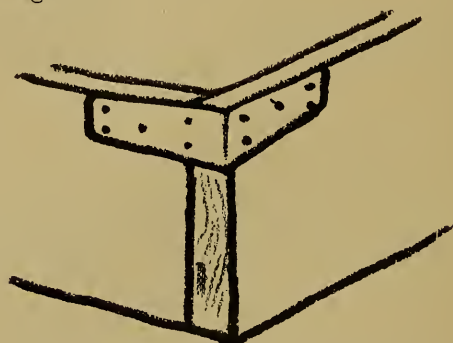
Arrange a series of charts or bulletins for current events. Have one for events which concern the school, one for the city and state, one for the country, and one or two for outside countries. Have each bulletin properly labeled. Each week or two post interesting pictures and accounts of important events. Call upon the pupils to furnish material, and take a personal interest yourself. Once each week spend a few minutes in showing and explaining the pictures and in reading the accounts which are to be posted.

CHAPTER XIII

THE STUDY OF NATURE — VISUAL

I. PLANTS

1. **Contact with plant life.** *First and second years.* Secure or make a window box, from six to eight inches wide, six inches deep, and as long as the window is wide. If the box is of wood, keep the corners from warping by securing them with strips of brass or zinc, one or two inches wide and about six inches long, as indicated by the following diagram:



Nearly fill the box with sifted earth mixed with rotted manure and a tablespoonful of prepared fertiliser. Marks off or indicate spaces which are to be devoted to the different kinds of plants. Get a catalogue from a seed store, and show the children pictures of what is to be planted. Mount the pictures and fasten them on the side of the box where the seeds are to be planted. Soak the seeds for twenty-four hours. Show the soaked seeds to the children. Then plant them at a depth four times the thickness of the seed. In one box plant vegetables, as, the bean, pea, corn, beet, potato, ('eye' of potato), etc. In another box, or in separate flower pots, plant seeds of flowering plants, as aster, marigold, morning glory, etc. In a third, or in part of the second box, plant some fruit seeds, as, the apple, lemon, orange, date, grape, etc. If bulbs, as, the tulip, hyacinth, or narcissus, are planted, water them well and keep them in a dark, cool place for from four to six weeks. Then place them in the sun and water them well.

When planting the seed, show the children the seed, the picture of the plant, and if possible, the plant, flower, or fruit itself. Note where the seed is planted, and mark the date. When the first shoot appears, mark the date. Bring the children up to the box, and after that let them see once or twice a week how the plants are growing. Give them a talk, bringing in the terms, 'leaf,' 'stem,' 'root,' and the necessity for warmth and moisture. Proceed somewhat as follows:

See how the bean has come up.
What is on top of the stem?
Notice how light green the stem is. This stem is darker.
What lifted the seed into the air?
How tightly the roots are holding the plant in the earth.
See this big leaf, and this baby leaf. Which is darker?
Notice how the plants turn toward the warm sun.

Let the children go through dramatic motions and finger plays. Direct them as follows:

We shall go with the wind, back and forth, back and forth.
A strong wind is now coming. How the stems bend.
Hold up your finger leaves. Now the wind is blowing.
Kiss the little birds 'Good morning.'
Go to sleep, little flowers. Night-time is coming.
Wake up, the morning is here. Greet the sun 'Good morning.'
Where are the little roots? Push around in the earth.

Have the children use their fingers to imitate flower buds, leaves, or rootlets. Let their bodies or their arms represent stems or branches. Present different situations, as, a wind storm, rain, night-time, driving snow, a hot dry day, friendship with other plants, with birds and insects, with children, etc.

From time to time bring into the classroom as many flowers as possible, and armfuls of leaves and branches. Bring in only one or two kinds at a time. Introduce them by name. Talk and question thus:

Are not these handsome Jack-in-the-pulpits?
Where is little Jack?
Come up and say, 'How do you do?' to him
Where is his pulpit? What color is it?
Where is the stem? The root?

Let the pupils go through finger plays, thus:

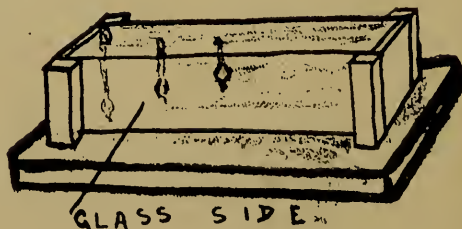
Hold up one hand and make a pulpit, like this.
Now put in Jack with the finger of the other hand.
Let Jack go to sleep. Cover him up.
Let him see the trees overhead.
Now it is cold. The wind is blowing.

Give a lesson in color work based on some plant or flower. Have a number of the plants fastened on cardboard and hung in front of the room. Call the plant by name and direct and question as follows:

How big is Jack-in-the-pulpit?
What color is the pulpit? The stem?
We shall make the pulpit first. Where shall we put Jack?
What color are the roots?

Fill the room with an atmosphere of plant life. Let the children come into contact with plants. Pass around leaves, branches, flowers, etc., and, if possible, let each child take some home. Do not attempt any formal lessons on plants, or plant names. Simply try to make the children acquainted with green leaves, pretty flowers, shrubs, trees, and whatever plant life is within reach. If it is possible to take children directly to field or forest, arrange for an excursion, and at different halting places, give talks, and answer questions as suggested above.

2. Nature study. Plants. *Third and fourth years.* Have window box, leaves, branches, and flowers in the classroom, as indicated in the preceding section. In addition deal more systematically with the growth and life of plants. Construct a number of narrow boxes, about a foot long, six inches high, and from one to two inches thick. Let both of the long sides be of glass. The box will look something like the following:



Fill the box with earth, and plant the seed, near one end. As soon as it begins to sprout, plant another seed, an inch or two away from the first. When the second seed has sprouted, and the first is lifting its head above the earth, plant a third seed an inch or two away from the second. In this manner arrange a line of seeds which can be seen through the glass side, and which will show the different stages of growth. Spend some time in showing pupils how to raise plants of their own. Show a number of different seeds, and let the pupils express a preference. Supply them with small flower pots, filled with earth. Direct them as follows:

Put your flower pot on the desk.

Make a small hole in the earth, about one quarter of an inch deep.

Put in your seed. Cover it. Press down the earth.

Who wants to go round and water the pots?

See that each pupil has his flower pot labeled, with his name, the name of the seed, and the date of planting. When it is time, have the pupils bring larger pots, remove the plants in them, and take them home. A series of lessons can be given, to show the growth of different seeds.

To show the conditions necessary for the growth of plants, arrange a series of glasses, jars, or small bottles as follows: (1) seeds in empty bottle, (2) seeds on a sponge or cotton soaked with water, (3) seeds on a sponge, with water to top of sponge, (4) seeds covered wholly with water, and (5) seeds in earth, watered from day to day. See that the seeds are soaked before being placed in the glasses, and have the glasses covered with cardboard to prevent the evaporation of the water. Have the pupils note which seeds sprout first, how long it takes them to sprout, and what condition the other seeds are in. Arrange a jar with seeds in moist earth, and have the jar covered so as to allow no air to enter. Have the pupils note what happens. Finally, get jars or bottles of different colors, as, red, blue, yellow, green, and one which allows no light to enter. Place seeds in moist earth in these jars, and let the pupils see what takes place.

Give several lessons on seeds, stems, and roots. Secure enough large beans to go round the class. Soak the beans for twenty-four hours and give one to each pupil. Direct them as follows:

Why is the skin so soft?

Take off the skin. What do you see?

Open the two seed leaves. What do you see?

Notice the little baby plant.

Which way does the young stem or bud point?

Which way does the tiny rootlet point?

What does the little plant live on before the root reaches the soil?

Treat corn grains in the same way. Show other seeds, as, peas, sunflower, acorn, chestnut, maple, apple, orange, etc. Show how the different kinds of seeds are scattered. Secure a number of burs or stickers, and pass them among the pupils. Call attention to the hooks and barbs. Question the pupils, thus:

Where will the seeds stick?

What animals pass near the plants?

How does the animal get rid of the stickers?

Show how the wind scatters seeds. Secure a number of maple seeds. Throw them into the air. Throw some near an open window. Let pupils blow some away. Ask the pupils to tell about and to bring other seeds which are easily blown by the wind. Show some fleshy fruit like the apple. Draw sections of the apple on the board to show the position of the seeds, thus:



Question the pupils:

Who likes to eat apples?
What do you do with the core?
What is inside the core?
What animals eat apples?
Name some other fleshy fruits.
How are the seeds carried? Why?

Show how seeds are scattered by means of pods. Pass pods among the pupils. Take some of the pods and open them suddenly with a twisting motion. To illustrate seeds carried by water, show a coconut, and call attention to the hard outer shell. After a number of lessons on the above topics, call upon the pupils to name as many seeds as possible. Write the names on the board. Then have the children tell how the seeds are scattered, (1) by wind, (2) by animals, (3) by water, (4) by pods. Let them tell why they are scattered, and the means employed. After the lessons on seeds, give a lesson or two on ferns. Pass ferns among the pupils. Let the pupils look for the fruit-dots, spore cases, and spores. Tell the pupils how ferns differ from plants which bear seeds.

In the same manner give lessons on roots and stems. Have enough samples of the root or stem, to go around among the pupils. See that at least one specimen is passed to a group of from three to five pupils. Show the difference between tap roots and fibrous roots. Pass among the pupils daisies, or grass, and let them note the kind of fibres, the color, the number, etc. Have several tap roots, as, beets or carrots, sprouting in water. Compare the root hairs with the fibres of the grass or the daisy. Show the growth of tap roots from seeds. Question the pupils:

Of what use is the tap root to the plant the second year?
Why are they pulled up the first year?
Why does the farmer leave some in the ground for the second year?
What happens to the tap root during the second year?

Deal with stems in much the same manner. Secure specimens of (1) erect, (2) trailing, as, the nasturtium, (3) creeping, as, the strawberry runner, (4) twining, as, the honeysuckle, (5) climbing, as, the vine or the creeper, (6) underground stems, as, the potato,

and (7) bulbs, as, the onion. Show how the sap passes through the stem. Place a daisy, or a corn stalk in black ink, or red ink, and show the pupils through what part of the stem the cap is carried. Do the same thing to live twigs of the maple or horse-chestnut. Pass stems to the pupils and let them perform the experiment.

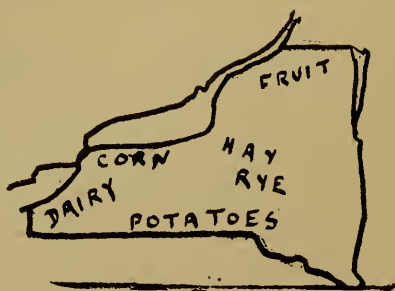
3. Industrial uses of plants. *Fifth and sixth years.* Ask the pupils to examine the different groceries in the neighborhood, and bring in the names of the different plants on sale. Write the names on the board as they are given by the pupils, but group them, thus: (1) parsnips, carrots, beets, etc, (2) potatoes, (3) cabbage, lettuce, etc., (4) apples, pears, tomatoes, etc., (5) beans, corn, etc. Question the class as follows:

What part of the beet do we eat?

How is the beet different from the potato?

What part of the plant is the cabbage we eat?

Have the pupils look up in their geographies where the different vegetables are raised. Draw a map on the board and indicate the products raised, thus:



Have the pupils raise some garden vegetables, as, tomatoes, salad, beets, etc. Plant seeds, transplant, prune, etc., according to the most approved methods. Explain to the pupils how to improve the plant by selecting the best plants for seed, by grafting, etc.

Give lessons on the staple food products, as, wheat, corn, sugar, rice, etc. Show the class how to grind wheat or corn, and sift the

flour. Secure several quarts of wheat, corn, or oats, and distribute it among the pupils. Let them take it home and grind it. Explain how the grain is raised on a large scale and how the flour is made. Let the pupils locate the wheat areas in the world, the corn areas, the sugar areas, etc. Show the pupils some sugar cane, squeeze out the juice into a glass, and then boil it. Let the pupils take home pieces of sugar cane, and boil the juice. Show them how sugar is made, and how it is refined. Pass some of the syrup through a cloth filter, and through some bone black. After the home food products, take up imported foods and drinks, as, coffee, tea, cocoa, etc. Give the pupils some green coffee beans, have them roast them, and let them note what happens. Let the pupils read how the coffee is raised, where it is produced, etc. Pass out some tea, and have the pupils soak the leaves in hot water, and straighten them out so as to get the original shape of the leaf. Let the pupils read how tea is grown, and how it is picked, dried, rolled, etc. Treat cocoa in much the same manner.

Take up plants which are used for clothing and shelter, as, cotton, flax, the different kinds of wood, etc. Get a number of cotton buds, and a large amount of raw cotton, sufficient to supply each of the pupils of the class. Show the pupils how to card the cotton, and how to twist the cotton into threads. Let them take the cotton home and make threads. Show how the threads are woven into cloth. Give each of the pupils a small hand loom, and let them weave threads into cloth. Let the class read about cotton and its manufacture, and about other fibres, as, flax, hemp and jute. Call upon pupils to bring cloth made from the different fibres. Arrange charts which show the fibre, the thread, the cloth, and the area which produces the plant. In the same way take up rubber and its manufacture.

Have samples of the different kinds of wood, with cross sections of branches of the trees. Explain the difference between soft woods and hard woods. Show a section of hard wood, as, oak. Pass pieces of oak among the pupils. Ask them to notice the grain. Hold up a piece of oak, and rub into the pores some brown or black filler (white lead colored with black paint, or putty, colored, will do). Question the pupils:

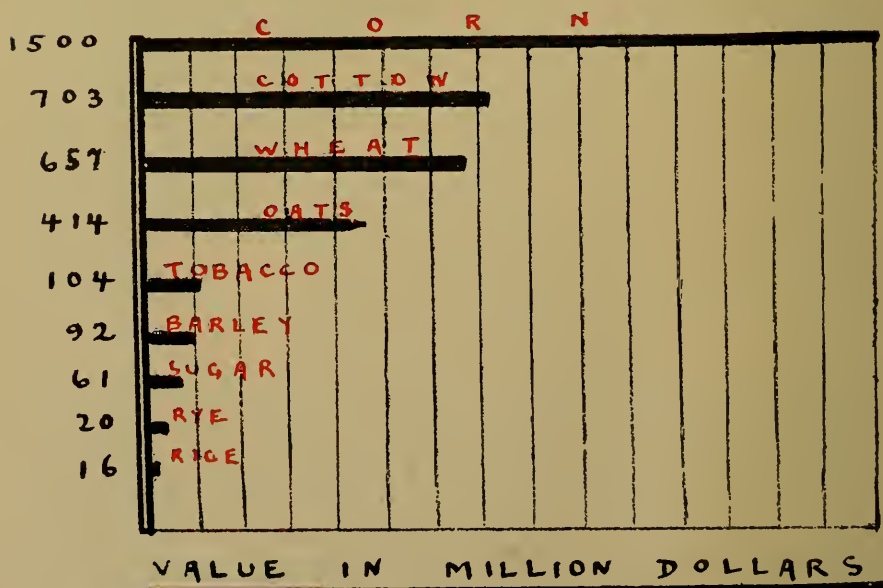
Where did the filler go?

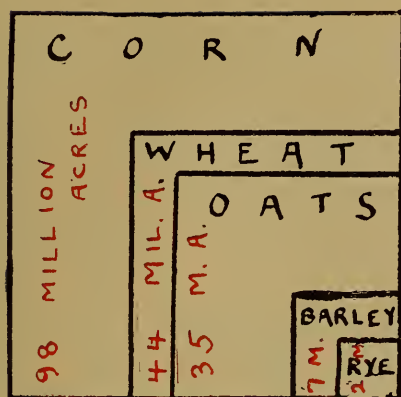
Why are not the stripes and markings colored?

What other wood can be filled in this manner?

Treat mahogany and ash the same way. Let the pupils closely examine the wood by means of magnifying glasses. Have them name the uses to which the wood is put, and write on the board a list of articles which are made of wood. After one or more lessons like the preceding, take up lumbering. Draw a map of North America on the board. Locate the areas which produce the different kinds of wood. Show how the trees are cut, how the logs are carried to the saw-mill and then cut up into boards. Illustrate the processes by pictures and by reading. Tell about life in a logging camp. Explain how forests influence rainfall, and how it has become necessary to conserve large areas of woodland.

Show the acreage, yield, and value of the crops in the United States by means of the following graphs:





COTTON - 32 MILL. A.
 SUGAR - 1 MILL. A.
 TOBACCO - 1 MILL. A.
 RICE - $\frac{1}{2}$ MILL. A.

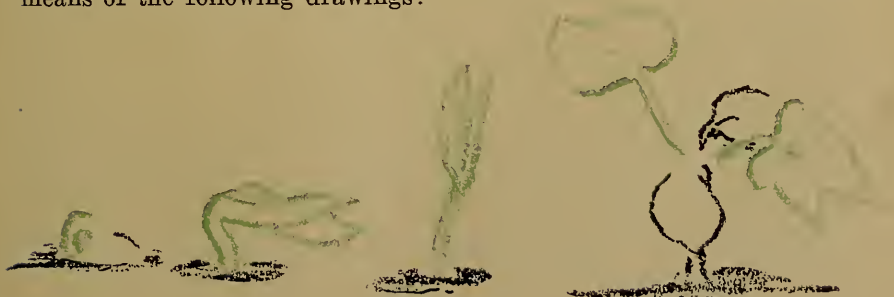
POTATOES - 3 MILL. A.

MILL. BU.

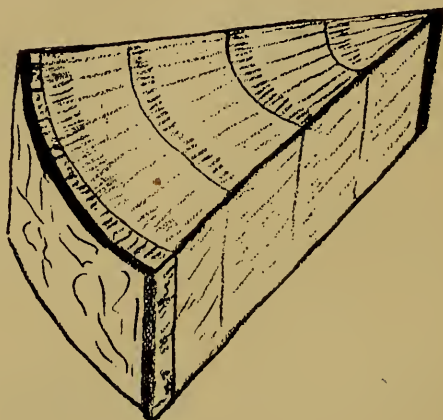
CORN --- 2500
 OATS --- 1000
 WHEAT --- 683
 BARLEY --- 73
 RYE --- 29

Have the pupils read the papers for reports of the different crops. Keep charts for clippings and illustrations which deal with the crops of the United States and of other countries.

4. **Elementary plant biology.** *Seventh and eighth years.* Give each of the pupils some squash seeds, beans, peas, or corn. Direct them to plant some of the seeds and keep a record of the stages of growth, with drawings and dates. Show the pupils what to note by means of the following drawings:



Take up next the study of the stem. Pass a number of twigs among the pupils. Have them scrape off the outer brown bark till they come to the green bark. Compare this green bark with the green stems of annual or biennial plants. Direct the pupils to scrape off the green bark till they come to the fibrous bark or bast. Let them break through the fibrous bark and note the sap which oozes out. Explain the function of this growing layer, or, cambium. Illustrate the parts of a woody stem by means of the following drawing:



Let the pupils look at tree sections through a magnifying glass. Question them as follows:

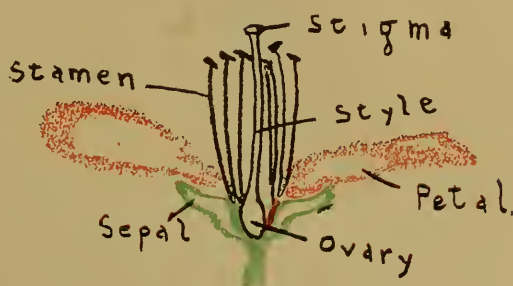
Where is the old wood? The new wood?
Point to the growing layer. To the pith.
Where are the pith or medullary rays?
About how old is the stem?

Let the pupils examine different stems under the magnifying glass, as, the corn stem, sunflower stem, bamboo, etc.

To show how the sap passes through the stem, let some live twigs stand in red ink for a day or two. Pass twigs among the pupils, or have them get twigs, and do the experiment themselves. Ask them to note through what part of the stem the sap rises. Let them try the same thing with corn stalks or lily stems. In one or two lessons deal with the growth of leaves from the stems,

the arrangement of leaves, and the kinds of leaves. Place a number of live, budding stems in water. Show the pupils how the buds open, and the marks on the stems where the leaves appear. Let the pupils become familiar with the names of some of the more common trees, as, the oak, maple, chestnut, horse-chestnut, linden, and some of the fruit trees. Show how the sap flows through the leaves by placing in red ink the end of a leafy branch of a bean or geranium.

Show the different parts of the flower by means of the following diagram:



Have enough flowers to supply each pupil with one or more. Ask the pupils to pick out the different parts. Direct and question as follows:

Look for the pistil.

Follow it down to the ovary.

What is the head called? What is its use?

Where can you find pollen? Get some on the end of a paper.

Explain how pollination is brought about by bees, and in the case of grasses, corn, etc., which have no colored flowers, by the wind. Have the pupils shake some of the pollen on the surface of the stigma. Let them note how the pollen is held. Present roots in much the same manner as that indicated in the case of stems. Let the pupils grow some beans, corn, or other seeds. Pass among them other fibrous roots, as, grass, daisy, or dandelion. Let them scrape off the outer layer or cortex, and examine the central cylinder and its fibres. Show how the roots absorb water by letting

the ends of some roots hang in red ink. Have the pupils note through what part of the root the liquid passes. Illustrate the parts of the root by the following drawing of a tap root:



Ask the pupils to bring in other specimens of tap root, as, beets, radishes, parsnips, etc. Pass them around the class and let the pupils examine sections of the root. Urge the pupils to examine other stems, roots, and bulbs on their own account. In the same experimental manner take up ferns and mosses.

II. ANIMALS

1. Contact with animal life. *First and second years.* Secure or make (1) an aquarium, and (2) a terrarium. An aquarium can be made by cementing panes of glass in a tin or a brass frame, using as cement, either (1), 10 parts fine, dry, white sand, 10 parts plaster of Paris, 10 parts litharge, 1 part powdered resin, stirred and mixed to the consistency of stiff putty with pure, boiled linseed oil; or (2), 8 parts putty, 1 part red lead, 1 part litharge, mixed to the consistency of stiff putty with raw linseed oil. Have the plant life and the animal life fairly well balanced. Put into the aquarium, first, a two or three inch layer of sand, some water plants, a few stones, and then the water. Let the water run in slowly by means of a siphon placed close to the sand. Plant some eel-grass, duck-weed, and other plants such as are found in ponds. Keep some snails in the aquarium, as these feed on the green slime which may form. Feed the snails on cabbage or lettuce leaves.

Get a number of the regulation gold fish and let them swim around. When raising tadpoles, keep them away from the fish by means of a wire netting. Feed them with the minute plant life found on the stones and plants of a pond. Keep the aquarium in a shady place, and have the top loosely covered. With the proper amount of plant life, and a few snails, the water will remain fresh indefinitely.

Have a terrarium made from a wooden crate, about three feet long, eighteen inches wide and eighteen inches high. Cover the long sides with glass, and the top and short sides with green wire netting. Place about three inches of rich soil on the bottom of the box, plant clover and thistles in one corner, moss in another, and cover the rest with grass seed, some small plants, and a few sprays of oak artistically placed. Secure different insects, caterpillars, etc., and place them in the terrarium. Feed the butterflies with sugar syrup, and try the insects with different fruits and vegetables. Release any of the insects which appear weak or indisposed. Let the children gather round the aquarium or the terrarium from time to time, whenever some new form of life appears, when food is given, etc. Give them interesting talks on the life before them, and call their attention to the kinds of life, the way the animals move, rest, eat, and so on. Do not attempt any formal lessons.

Illustrate by picture and story the more common animal pets of children. Make use of nursery rhymes which deal with animals in a humane way. Let the pupils read and dramatise such rhymes. For example, introduce 'Pussy' by the following:

I like little pussy, her coat is so warm,
And if I don't hurt her, she'll do me no harm;
I'll not pull her tail, nor drive her away,
But pussy and I together will play.

Dramatise the following:

Ten little mice sat down to spin,
Pussy passed by, and just looked in:
What are you at, my jolly ten?
We're making coats for gentlemen.
Shall I come in and cut your threads?
No, for, Puss, you'd bite off our heads.

Select ten little children for mice, and one larger pupil for the cat. Direct and question as follows:

Where are the ten little mice?
Come now, let me see you making coats.
Where is Pussy? What does pussy do?
What do you say, when you come in?
What do you say, little mice?
Now let us see how fast you can scamper away.

In addition, let some of the pupils act out the piece while some other pupils are reciting it. The following deals with the cat and the mouse:

Pussy-cat, pussy-cat, where have you been?
I've been to London to look at the Queen.
Pussy-cat, pussy-cat, what did you there?
I frightened a little mouse under the chair.

The following tells about the cat and the robin:

Little Robin Redbreast sat upon a tree,
Up went pussy-cat, and down went he:
Down came pussy-cat, and away Robin ran;
"Catch," says Robin Redbreast, "Catch, if you can."

Let the class read, 'The three kittens they lost their mittens,' with some of the pupils acting as a chorus for the last lines of each stanza, 'Miew, miew, miew, miew.'

Call upon pupils to imitate animals, to walk like them, cry like them, etc. Direct and question as follows:

Who wants to be a nice little dog?
Come up in front of the room. Bark.
How do you watch in front of the door?
Come now, make friends with this other little dog.

Have the pupils imitate dogs, cats, chickens, frogs, etc. Let different pupils take the same part. Arrange short scenes, as, The lost dog finding his master, Chasing away a man who tries to enter the room. Two frogs playing 'Tag,' Flying back and forth to the nest with food for the little ones, etc. Have the pupils act out the scene at first, and then speak as they act. Let them choose their own expressions wherever possible.

2. Nature study. Animals. *Third and fourth years.* Make use of an aquarium and a terrarium, as indicated in the preceding. Show the life history of the frog or toad, and of the moth or butterfly. Secure some eggs of the frog or toad and place them in the aquarium. Enclose them in a separate space by means of a wire netting. When the eggs begin to hatch place in the aquarium some of the animal life found on the stones and leaves in the pond. Let the children go to the aquarium by groups each day or two and note the growth of the tadpoles. Note the day on which the eggs are placed in the aquarium, the day on which the polliwogs appear, and mark other changes in growth, as, the appearance of the legs, and the gradual disappearance of the tail. When the tail disappears provide a small, floating island on which the toad or the frog may rest. Supply insects and worms.

To show the life history of the moth or butterfly, collect a number of cocoons and place them in the terrarium. Question the pupils as follows:

How did the cocoon get on the twig?

What was it in the summer?

How did the caterpillars lie during the summer?

What did they eat?

Where did they come from?

By means of colored charts show the development from the egg to the caterpillar, from the caterpillar to the cocoon, and from the cocoon to the butterfly or moth. Cocoons can readily be gathered in the Fall. If possible try to raise caterpillars from the eggs of the butterfly. Use the terrarium for this purpose.

Deal with the life of animals, rather than with the form and structure. Take up the homes of animals, how animals protect themselves, how they eat, move about, and the like. As types of animal homes present the beehive, the beaver's dam and nest, the bird's nest, the gopher's nest, etc. Bring into the classroom a partly emptied honeycomb, such as is sold in grocery stores. Show the wax cells. Draw some of the cells on the board. Break off part of the wax and melt it. Tell the class the story of the queen bee, the workers, and the drones. Draw the diagram on the board to illustrate other uses of the cells in the beehive, thus:



If possible secure a hornet's nest and show its cell structure to the children. Let the pupils read about bees and about the life of bees. In other lessons illustrate how other animals build their homes. Tell about the beaver and how he builds the dam. Draw the following on the board:



Question the children thus:

- Why is the beaver's house built above the water?
- How does he get the trees and branches in position?
- What does he use to keep the branches in place?
- Why does he work at night?
- Why cannot a wild animal get at him?

Tell the pupils how the beaver warns his mates of danger, why men hunt him, why animals try to catch him, etc. Let the pupils read about the beaver. Illustrate the home of the mole and of the pocket-gopher as follows:



Show how the young are hidden from their enemies. Question the pupils:

- What four-legged animals run about in the house?
- How do they get from floor to floor?
- How do they get through the floor?
- How does the cat catch them?

In much the same manner present the homes of birds, the hibernation of bears, the dens of foxes and wolves, etc.

Show the pupils how animals attack others, and how they defend themselves. Tell the pupils about the cat's claws and teeth. Question the pupils, thus:

- How does the cat tear its meat?
- How does it hold a mouse or a rat?
- Do the claws always stick out?
- What other animals have claws and teeth like the cat?

Illustrate the cat's claws as follows:



Show how the canine teeth are adapted to tearing raw flesh, thus:



Tell the pupils stories about the fox, the wolf, the lion, etc. Let the class read how lions kill their prey, how they carry off men, destroy cattle, fight, etc. In the same manner illustrate the talons and beak of the eagle, the teeth of the shark, the fangs of the snake, etc. Draw diagrams on the board, tell stories, and let the pupils read about the animals in question.

Show the pupils how the weaker animals escape from their enemies. Illustrate the chase of a rabbit by a dog or a fox. Draw the following on the board, explaining as you draw, thus:



Why did the rabbit turn in and out from A to C?
Then he ran to D, turned back to F and ran to G where
he waited till the dog passed by towards D.
Why did the rabbit run back to E and jump across to
the log E?
Why do rabbits sometimes jump across running streams
or rivulets?

Let the pupils tell of other animals which escape by running away. Tell stories about deer, squirrels, animals which live underground, birds, etc., and have the pupils read stories which tell how these animals are pursued by others.

By means of blackboard sketches, charts, illustrations, reading, etc., give some account of the way in which animals feed. If possible, show caterpillars crawling along a branch and feeding on the leaves. Make sketches on the board showing the same thing. Question and discuss as follows:

What do the caterpillars eat?

Why do they eat so much?

How do they eat when they become butterflies?

Draw the following on the board:



Explain and question, pointing as you do so, thus:

See this long, hollow tongue.

When the butterfly sticks it into flowers, what does it sip?

About how long is the tongue drawn on the board?

What other insects sip honey?

Let the pupils read about the feeding of other insects, about the storing of honey by bees, etc.

Take up other animals, as, birds, fish, reptiles, mammals, etc. Question pupils as follows:

Who has seen a robin in the early summer morning?

What does he search for on the ground?

How does he get at the worms?

How will a bird catch flying insects?

Drew the beaks of several of the smaller birds on the board. Point out the scissor-like formation, the pointed ends, the sharp sides, and the hollow inside. Question the pupils:

How will the bird eat berries, or fruit?
How will it eat seeds?
How will it eat meat?
What birds eat flesh?

Draw the beak of the eagle, and show how the hooked form enables the bird to tear meat. Show a picture of the woodpecker. Point to the straight, pointed beak. Show other bills, as of the stork, pelican, flamingo, and so on. Let the pupils read about these birds, how they live and eat. In the same manner present the manner of feeding of the shark, snake, cat, dog, mouse, squirrel, giraffe, elephant, etc. If possible, show specimens of the head and teeth.

Illustrate the coverings of animals and their means of locomotion. Secure, or ask the pupils to secure a number of feathers of some of the common fowls. Pass the feathers among the pupils. Direct the class as follows:

Try to blow through the feather.
Hold it loosely, and blow under it.
Wave the feather as a bird does when flying.
Why does the bird keep dry when it rains?
How does the mother keep her chicks warm?

Show the pupils pictures of different birds, at rest and on the wing. Let the pupils read about the different birds. Show how the webbed foot of some birds acts in the water much like the wings in the air. Compare the wings of the bat with the wings of the bird. Take up the coverings of other animals in a similar manner. Try to get samples of the different kinds of fur, hide, and skin. Pass them around the class. Show pictures of the animals bearing such fur or hide. Question the pupils, thus:

At what season of the year is the wool or fur thickest?
What animals have you seen with such fur?
What else helps an animal like the bear to keep warm?

What use does the bear make of his fat when he sleeps through the winter?

What other animals are kept warm by means of layers of fat?

Let the pupils read about hunting of whales for their blubber. Compare the skin of the whale with the scales of the fish. Show pictures of specimens. Question as follows:

Why does the fish not have blubber?

Is the fish warm blooded or cold blooded?

The whale?

Present similarly the skins and coverings of other animals, as, the elephant, the porcupine, the tortoise, the hedgehog, etc.

Take up with the class the question of how animals move about. Question the class as follows:

How do you get home?

How would a dog or a horse follow you?

How would a bird get to its nest? A fish? A snake?

What animals have two legs? Four legs?

Let the pupils read about lion or tiger hunting, about the chase of rabbits by foxes, the escape of squirrels from cats or dogs, the catching of birds or mice by cats, and so on. Show how the lion crouches, crawls, leaps, walks, or runs. Illustrate similar actions in the case of the cat. Show how the kangaroo hops and compare it with the Jack-rabbit. Let the pupils watch the fish swim about in the aquarium. Call attention to the action of the tail in propelling the fish through the water. Present the above, if necessary, in a series of lessons.

Teach the children to recognise the different types of animals, as, those found in the immediate neighborhood, those commonly seen in a menagerie or circus, those which recur in song and story, and the different native and foreign types. If possible, let the pupils read about the type in a supplementary reader which is well illustrated. In addition, deal systematically with the different types by means of colored charts and mounted specimens. Show

the type and tell about the life of the animal, where he lives, what he does, and so on. Keep repeating the name as you tell about the animal, thus:

See the beak of this woodpecker?

The downy woodpecker bores into trees to get at the grubs.

What color is the head of the woodpecker?

How does he hold on to the tree?

Why do we call this type the sapsucker?

Why does the sapsucker bore holes into the tree?

Call attention to the color of the animal, the size, form, head, tail, etc. If it is possible make use of a number of illustrations, charts, specimens, etc., which show the animal in different positions and in different activities.

3. Industrial uses of animals. *Fifth and sixth years.* In presenting the industrial uses of animals, keep in mind the headings, (1) transportation, (2) food, (3) clothing, and (4) shelter. Show pictures of different types of horses, as, the draught horse, the war horse, the racing horse, etc. Illustrate how the horse is used, as, in riding, drawing the plough, wagon, etc.; carrying packs, etc. Question and direct the pupils as follows:

Look at the hoof of the horse.

Why does this help him draw heavy loads?

How is the hoof protected?

What kind of a hoof has the ox?

Why cannot the ox move as fast as the horse?

Why cannot the ox draw such heavy loads?

Which way do you run more swiftly, flat-footed, or on your toes?

Show how the hoof of the horse gives him a better hold on the ground and enables him to move more quickly than other beasts of burden. Show pictures of the ox carrying, drawing, etc. Illustrate the foot of the camel and show how it is adapted to traveling on the sand of the desert. Let the pupils read stories about these animals.

Take up the use of animals as food. Question the pupils thus:

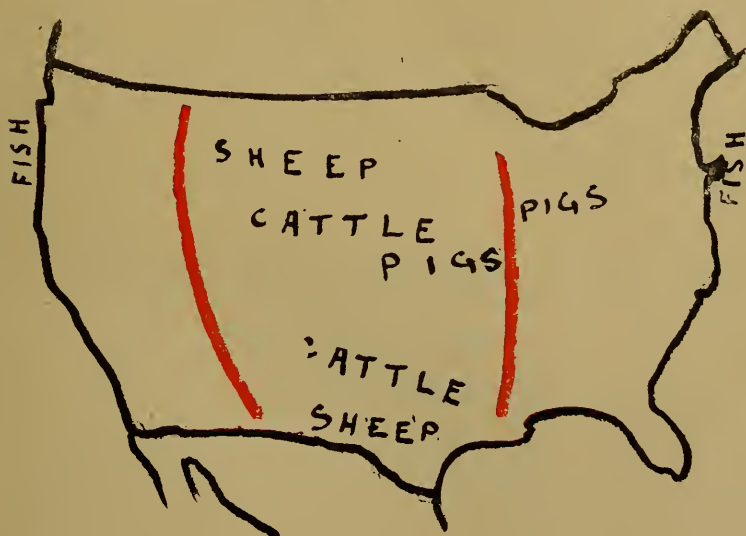
Name the foods which made up your dinner.

Where did the meat come from?

Where did the butcher get it?

What other meats can you get in the butcher shop?

Show the pupils what is meant by 'beef' and 'cattle,' 'pork' and the 'pig,' 'mutton' and 'sheep.' Write the names of the different meats on the board as they are given by the pupils. Let the pupils then name the animal from which the meat comes. Draw a map on the board, thus:



Mark off the areas which produce the different animals. Question the pupils:

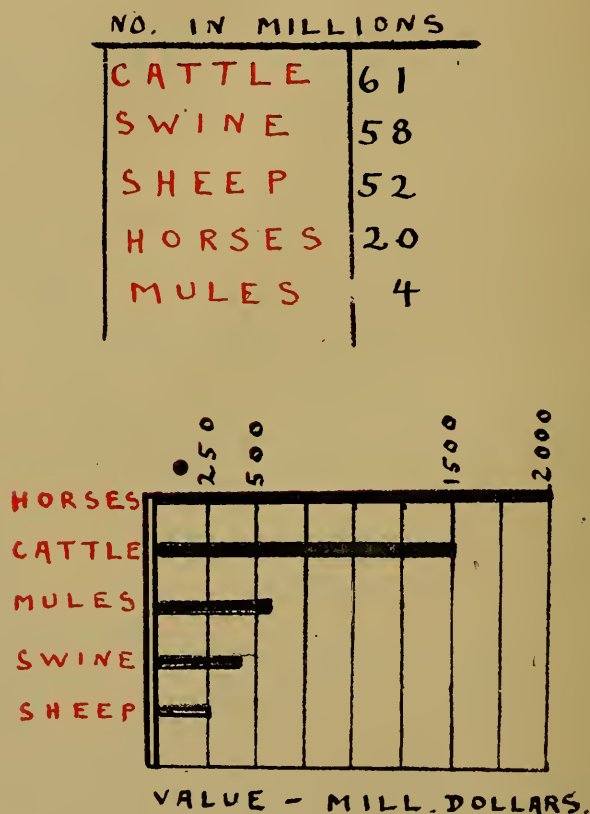
What are cows fed on? Pigs?

Why is the pig called a 'walking corn crib?'

When corn is dear and pigs are cheap, which will the farmer raise for market?

When corn is very cheap, how will he get more money for it?

Let the pupils read about the large packing industries, about cattle raising, etc. Tell them how meat is frozen by being placed in a series of rooms, one colder than the other, till the meat is frozen all through. In the same manner present fishing, dairy products, the poultry and egg industries, etc. Draw the following graph on the board:



Deal with the clothing of the children in the same way. Introduce the topic of the use of animals for clothing as follows:

What are your shoes made of?

From what animal does the leather come?

Is the skin of the cattle leather?

What is it called?

How is the hide tanned?

Bring samples yourself and have the children try to get pieces of cowhide, patent leather, russet leather, sole leather, etc. Pass the samples among the pupils. Let the class read about the manufacture of leather. Present other animal clothing material, as, fur, wool, and silk. Secure samples of the different kinds of fur. Pass them among the pupils. Question as follows:

- How does fur differ from leather?
- Is there any leather back of the fur?
- Where does the fur come from?
- How do they get the animals?
- Name some of the fur-bearing animals?
- Why is some fur, like seal, becoming so scarce?

Let the pupils collect advertising matter which shows the price of fur coats, the names of imitations, etc. Paste such matter on charts. Let the pupils read about hunting and trapping.

Present the use of animal products for shelter (skin tents) in a similar manner. Sketch a map on the board and mark off the different areas in which hides, furs, etc., are obtained. Question as follows:

- Why are the fur-bearing animals found so far north?
- Why are we more certain of having a steady supply of hides?
- How are feathers obtained?
- What feathers are raised and cultivated on farms?
- What tortures do trapped and hunted animals suffer?

4. Elementary animal biology. *Seventh and eighth years.* Let the class study living specimens. Make use of an aquarium and a terrarium for this purpose. Present living insects in the terrarium, and mounted specimens from a class collection. Have the pupils look carefully at the form of the insect, the head, eyes, antennae, legs, etc. Direct and question as follows:

- How many parts to the insect?
- Where is the head?
- What is attached to the head?
- Where is the thorax?
- What parts are attached to the thorax?
- Where is the abdomen? Which is the longest?
- Which part is the widest? The smallest?

Let the pupils observe how the insect walks. Have them count the legs and note how the pairs of legs move. Pass around a number of magnifying glasses. Let the pupils examine the head of the insect, the eyes, the antennae, the scales on the wings, the joints of the legs, etc. Ask a committee of pupils to collect different kinds of insects for class use.

In one or more lessons deal systematically with the more common insects of the neighborhood. Draw an outline of the parts of the insect on the board, thus:



In the manner suggested above, let the pupils study the butterfly, moth, grasshopper, beetle, roach, fly, bee, mosquito, etc. Take up one or two types at a time. Point out the difference in the wings of the insects. Illustrate the use of the antennae, the structure of the mouth, the formation of the eyes, etc. Make or secure colored illustrations of the different insects found in the neighborhood. If possible, have specimens fastened to branches or leaves, in imitation of nature. Secure earth, twigs, etc., and fix the insect in the position in which it usually is found when alive. Use tin boxes from six inches to a foot square for this purpose. Avoid the gruesome arrangement of rows of insects stuck on pins.

Spend some time on the silk worm, the bee, the mosquito, the fly, and the more common insect pests. Present the life history of the silk worm. If possible, secure a number of silkworm cocoons and pass them among the pupils. By blackboard drawings and

charts show the silk moth, the larvae feeding on mulberry leaves, etc. Let the class read about the cultivation of the silkworm, the manufacture of silk, etc. In a similar manner take up the study of the bee. Show pictures of the drone, the queen bee, and the worker. Let the pupils read or tell them about the laying of the eggs in the cells of the brood comb, the battle between the rival queens, and the duties of the workers.

Show the life history of the mosquito, the fly, and the pests injurious to crops. If possible, raise mosquitoes in an aquarium. At least have a chart which illustrates the different stages of mosquito life. Question pupils as follows:

Why are swamps good breeding grounds for mosquitoes?
 What are some effects of the draining of swamps?
 How else can we protect ourselves against the mosquito?

Tell the pupils how malaria spores are carried by the mosquito. Show the development of the spores as follows:



A - Entrance of malaria

B-D - Development

E - Breaking up of blood corpuscle

In the same manner trace the passage of typhoid and other bacteria from exposed garbage and refuse to food and drink by means of the common house fly. Question as follows:

What part of the fly carries the germs?
 How can we prevent the bacteria from being carried?
 How else? Where are flies usually found?

Let the pupils read about the efforts made to exterminate the mosquito and the house fly, and to do away with malaria, typhoid, and yellow fever. Of the pests which injure crops, take up with

the class the study of the codling moth, the clothes moth, the tussock moth, and the gypsy moth. Prepare charts or secure specimens, with samples of the products which the larvae have injured. Let the pupils read about the damage done and the annual losses sustained because of the pests.

Use aquaria in the study of fish. Lead the pupils to observe how the fish use the tail in propelling themselves. Have them note the use of the different fins. Let them feed the fish and look at the action of the mouth, gills, etc. For closer study, secure enough dead fish to be passed, one to every two pupils. Direct and question the class as follows:

Raise the gill covers.

How many gills are there on each side?

How are the gills supported?

Pour water through the mouth. Where does it come out?

Which are harder, the gills, or the arches?

Look at the gill filaments through a magnifying glass.

In the same fashion let the pupils examine the eyes, mouth, and fins. Use the head of a large fish to show the parts of the mouth, etc. Draw the following on the board:



Have the pupils dissect the fish and look for the organs indicated on the board. In one or more lessons teach the pupils to recognise the different kinds of fish. Use colored pictures and charts for this purpose. Let the pupils go to the fish stores and write the names of the fish which they recognise. In the manner

given in the preceding, direct the class in the study of the crab, the oyster, and the worm. Let the pupils see how the animal moves, eats, senses objects, and help them to recognize the chief organs.

In presenting birds and mammals, make use of skeletons, dead specimens, and such parts as can readily be obtained from a butcher store. The heads, feet, and wings of chickens should be obtained. Let each pupil study the head of a chicken, note the eyes, bill, tongue, nostrils, and external ears. Aid the class by means of blackboard drawings and of colored charts. Secure a dead fowl or a rabbit and show the organs of digestion, of respiration, and of circulation. Make use of other specimens obtained for the same purpose from the butcher shop. Give a series of lessons on these topics if necessary. By means of charts and specimens lead the pupils to recognise the more common species. Let the pupils read about the animals which are harmful and those which are of use. Bring out the uses of song birds as destroyers of insect pests, etc., and show the harm done by the sparrow and the crow. In the same manner acquaint the pupils with the uses of other animals usually considered harmful, as, the frog, the toad, and many snakes.

CHAPTER XIV

THE STUDY OF NATURE — VISUAL — (Concluded)

III. NATURAL SCIENCE

1. **Contact with natural phenomena.** *First and second years.*
Keep a calendar on the board. Call the attention of the class to the weather, and enter each day a picture which indicates whether the day is sunny, cloudy, or rainy. For this purpose draw either a blue cloud, or a yellow sun, or an open umbrella. Call upon some child to tell what kind of weather it is. Have the children read and act out rhymes appropriate to the weather. Make use of rhymes like the following:

Doctor Foster went to Gloster,
In a shower of rain;
He stepped in a puddle, up to the middle,
And never went there again.

Blow, wind, blow, and go, mill, go,
That the miller may grind his corn;
That the baker may take it,
And into bread make it,
And bring us a loaf in the morn.

One misty, moisty morning,
When cloudy was the weather,
I met a little old man
Clothed all in leather;
He began to compliment,
And I began to grin,
How do you do, and how do you do,
And how do you do again?

Let some of the pupils take the part of Doctor Foster. Draw a puddle on the floor. As some of the children read the rhyme, have the 'Doctor' walk round, and step into the puddle. Deal with the other nursery rhymes in the same way. Other good rhymes are the following:

The south wind brings wet weather,
The north wind wet and cold together;
The west wind always brings us rain,
The east wind blows it back again.

Evening red, and morning gray,
It is the sign of a bonnie day;
Evening gray and morning red,
The lamb and the ewe go wet to bed.

Get different rhymes from any good book of Mother Goose's Nursery Rhymes.

Have the pupils tell where the sun is first seen, where it is last seen, and where it is at twelve o'clock. Direct them to look for the stars and the moon. Once each month note at about what time the stars are seen. Use the following well-known rhymes:

Twinkle, twinkle, little star,
How I wonder what you are!
Up above the world so high,
Like a diamond in the sky!

When the blazing sun is gone,
When he nothing shines upon,
Then you show your little light,
Twinkle, twinkle, all the night.

Then the traveler in the dark
Thanks you for your tiny spark;
How could he see where to go,
If you did not twinkle so?

On a blue background, paste gold stars and show it to the class. Let the class read similar rhymes, like 'Early to bed,' etc., etc. Connect the seasons with the signs given in nature, as, the appearance or disappearance of birds, flowers, etc. Note the first snow fall, the first frost, the first thunder storm, etc. The following rhymes can be used:

Xmas is coming, the geese are getting fat,
Please to put a penny in the old man's hat;
If you haven't got a penny, a ha'penny will do,
If you haven't got a ha'penny, God bless you.

The north wind doth blow,
And we shall have snow,
And what will the poor Robin do then, poor thing?
He'll sit in a barn,
And keep himself warm,
And hide his head under his wing, poor thing.

Summer is a-coming in :
Loud sing Cuckoo !
Groweth seed and bloweth mead,
And springeth the wood new.

Read such poets as Tennyson, Wordsworth, Burns, etc., for poems which deal with birds, flowers, wind and weather, and which are simple enough for children. Let the pupils take the part of the 'poor Robin,' or the 'Cuckoo,' and act out the part as some other pupil is reading the rhyme.¹

2. Nature study. Natural forces and phenomena. *Third and fourth years.* Let the class study the different kinds of weather when the occasions arise. Present the topic, 'Rain,' on a rainy day, 'Frost' on a frosty day, and so on. On cloudy days have the class note which way the wind is blowing. Let them note what kind of a wind causes the rain to fall. Say nothing about causes. Simply keep notes during the term which tell about the kinds of weather, the winds accompanying such weather, and the dates. On snowy days, have the pupils catch snow crystals on their coat sleeves, or on cloth, and note the different forms. Show such forms by means of blackboard drawings or charts. Take only a few minutes to secure notes on the weather of the different days. Make use of these notes when the time comes for the lesson in 'Nature.' Direct and question as follows:

Which way did the wind blow before the rain on October 4?

What kind of a wind brought the rain on that day?

Remember the heavy rain last week, when every one was soaked.

How was the wind before the rain? After?

After the class has seen that the warm wind brings the clouds, and the cold wind causes the rain to fall, let the pupils tell over what bodies of water the warm wind has passed. Make a drawing on the board to indicate this process of rain formation.

¹ The rhymes used above are taken from Mother Goose's Book of Nursery Rhymes and Songs, edited by E. and G. Rhys, and published in Everyman's Library.

Show how water evaporates. Boil water in a glass beaker. Question the pupils as follows:

- Where do the bubbles form first? Why?
- Which way do they go? Why?
- What does the water become?
- Where does the steam or vapor go?
- When wash is boiled at home, or in the laundry, where does the steam go? Where does it settle?

Let the steam settle, by holding a cold glass plate over the boiling water. Let the class see that the cold plate acts on the steam as a cold wind does on clouds. Lead the pupils to see that water is continually evaporating. Dissolve some alum in water, place it in a wide-necked bottle, and suspend strands of soft, white cord in the mixture. Do the same thing with salt and sugar. Let the pupils arrange bottles in this manner. Show that while the water becomes less, the crystals increase. Question the pupils, thus:

- Why do the streets dry after a rain?
- Why does your ink become thick?
- How can we get salt from the sea water?
- How do we dry our clothes?
- Where will wet clothing dry most quickly?

Let the pupils read about the dry and the wet seasons, about deserts, etc. Tell them or let them read about fogs, damp climates, etc., and show by blackboard diagram or chart how warm winds sweep over large bodies of water, and afford a supply of vapor and rain.

When the weather is cold enough, freeze some water in a large basin. Let a layer of ice form, and pour out the water left. Show the ice to the class. Let them see the rough under surface and part of the crystal formation. Let the pupils fill bottles with water. Place the water on the outside of the window-sill. When the water begins to freeze, question the pupils:

- Where does the ice begin to form?
- Why is there usually room for fish in a river which is frozen over?
- Why does not the river freeze to the bottom?

Put a thermometer in freezing water and show the temperature. Cork some of the bottles which have been filled with water and let the water freeze. Question the pupils somewhat as follows:

Why did the bottles burst?
When water freezes in the earth, what happens to the soil?
When the ice melts, how is the soil?
Is the soil loose or tight?

Let the pupils see that the hard, frozen earth, which seems like stone in the winter, becomes loose and porous when the particles melt and flow away as water. Show the pupils that hail is nothing more than frozen rain. Draw a diagram on the board to illustrate the falling rain meeting a freezing layer of air.

Deal with the seasons and with day and night simply as natural phenomena. Once or twice each week have the pupils note the time when the sun sets, and if possible, indicate about when it rises. Note the number of hours which make up the day. Show that the days become shorter as winter advances. Lead the pupils to observe the changes in animal and plant life which accompany the changes in the seasons. Question them as follows:

When do the leaves begin to get green?
When do the flowers begin to bloom?
The violet? The Jack-in-the-pulpit? The daisy?
When do the birds begin to build their nests?

In the fall bring in oak or other leaves to show the change in the colors. Let the pupils note the days when the leaves begin to fall, when the branches begin to get bare, etc. In a series of lessons deal with the seasons in a purely descriptive manner. Take up such changes as are seen in the immediate neighborhood of the school, as, in the park, in the woods, in any streams nearby, in the kind of vegetables sold or raised, in the changes in clothing, in the difference in amusements, and other activities. Let the pupils read about customs in other lands, as determined by the seasons and the general climate.

In a similar manner deal with natural resources, as, forests, coal, etc., and with the simpler phases of heat, light, and sound.

Show how forests and waterways usually go together. Arrange three layers, one of sand, one of forest earth, and one of dead leaves, twigs, etc. Place the layers in square tin boxes, perforated at the bottom. Sprinkle the same amount of water on each layer. Question the pupils as follows:

Which layer lets the water run through most quickly?

Which holds the most water? Why?

Why are forests useful in the formation of rivers?

Let the pupils read about deserts, about forests, etc. Illustrate the part which mountains play in keeping deserts dry. Let the class read about coal. Show them pieces of hard coal and soft coal. Take a thin strip of soft coal and burn it like a 'candle.' Illustrate the working of a mine by pictures, charts and blackboard drawings. Have the class read about life in a mine. Deal with other mine products in the same manner. Have the pupils collect stones which are used in building, and which are common in the neighborhood. Question the class:

What kind of stone is used in the facing of this school?

Look at this sample. Is it harder or softer than the stone used for foundations?

What kind of stone is used in the pavement in front of the school?

Lead the pupils to recognise the stones used in building. Keep a collection of such stones. In much the same way take up minerals and mineral ores. Let the pupils name the metals used in common tools and household articles. Show the different ores. Illustrate the processes of smelting, refining, etc., and let the pupils read about them.

Present heat, light, and sound simply as phenomena. Show how heat expands bodies. Take a piece of ice. Melt it in a beaker under a flame. Question the class as follows:

Which is harder?

What did the heat do to the ice?

Hold up an object at the end of a piece of wire. Slowly heat the wire red-hot. Let the class notice how the wire becomes softer and how it bends. Question the class:

Why does a blacksmith heat the horseshoe before he hammers it?

What does the heat do to the iron?

What other metals must be heated?

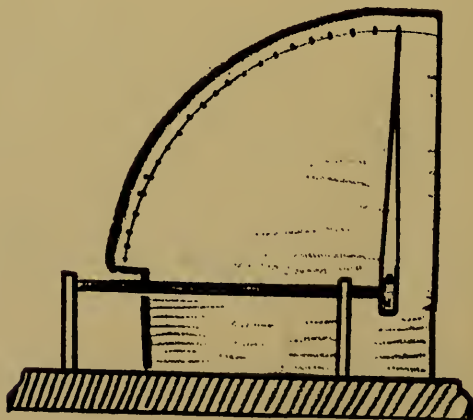
What will happen if the heat is increased?

What happens to lead when the plumber heats it?

Put some colored liquid in a bulb similar to the following:



Let some of the pupils put their hands around the bulb. Show how the liquid rises. Use a thermometer in the same manner. Have a pupil put his tongue on a thermometer. Use a brass rod to show similar effects of heat. Construct instruments like the following:



If necessary, spend several lessons on the topic of expansion. Deal with radiation, convection, and conduction in the same descriptive manner. Slowly boil water in a beaker. As bubbles begin to form, drop in crystals of potassium permanganate. Point out to the class that the heated particles slowly rise, become cold, and then fall. Arrange a toy spiral or wheel over the radiator. Clap some chalk dust over the radiator. Draw a diagram on the board to show the heat rays. To show the conduction of heat, let a pupil hold the ends of several wires, one copper, one iron, one brass, and heat the ends. Let him hold a piece of hard wood, and heat the end. Have the class name the materials used for handles of irons, pots, etc. Spend one or more lessons in reading about the sources and effects of heat.

With light, illustrate its composition, reflection and diffraction. Pass light through a triangular glass prism. Show the colors of the spectrum on a white piece of paper. If possible, pass prisms among the pupils and let them see the colors. Construct a disc with the colors of the spectrum. Turn it rapidly before the class. Make use of colored glasses. Let light pass through red glass, yellow, blue, etc. Then let light pass through two of the glasses. Mix two colors by means of a disc. Draw a spectrum on the board, or illustrate it by means of a chart. In one or more lessons take up diffraction and reflection. Make use of lenses to magnify, focus, etc. Focus the sun's rays on paper, wood, etc., and on the hands of some of the pupils. Make a drawing on the board of passage of the rays as they are bent to a focus. Have the pupils place a pencil or stick in a receptacle filled with water. Question them:

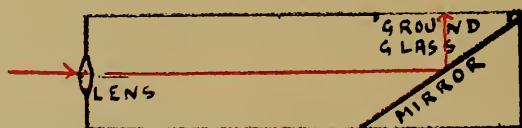
Look at the stick. Where does it seem bent?

Does the bottom of the vessel seem higher or lower than it really is?

Draw the following diagram on the board:



Have the class tell why one must aim below the fish in water to hit him. Show the class how to construct the following:



Have several such finders in the room and pass them among the pupils.

Show how sound is produced. Make a number of sounds indiscriminately, by tapping the desk, clapping two pieces of wood together, hitting the basin, glass, pitcher, etc. Then sound a tuning fork. Hold it in the air. Place it on a box. Tie a few colored streamers to the end of the fork and sound it. Question the pupils:

Is there any sound now?

Is there now, when I strike it?

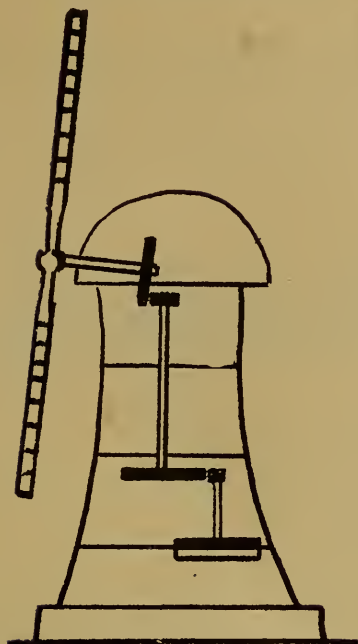
When do you see the streamers move?

When does the air move?

How do you hear it?

Vibrate a long, thin string, and a long, thick one. Compare the sounds. Do the same thing with shorter strings. Have the pupils tell which produces a high note, which a low note. Moisten the finger and rub over the top of a thin tumbler. Slowly fill the tumbler. Have the class see the effect on the sound produced after each addition to the height of water in the glass. Produce sounds by reed instruments. Let the class see the reeds, and illustrate how they vibrate. Let the pupils read about thunder and lightning, about sounds heard through the air and through the earth, as in blasting, etc.

3. Industrial uses of natural forces. *Fifth and sixth years.* Present the uses of wind and water in the running of mills. Make a wheel fitted to turn a small mill, and place it near the open window. Let some of the pupils make such wheels. Draw the following diagram on the board:



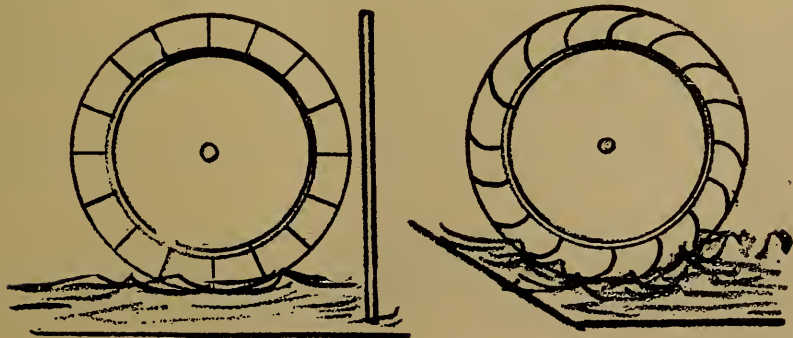
Have the pupils tell which way the wheels turn. Question them as follows:

When the large wheel moves around once, how many times will the small wheel revolve?

What is the mill used for?

Why is a windmill cheaper than a steam engine?

Let the class read about the different uses of windmills. Deal with the effect of wind on the sails of sailing vessels in the same manner. Take up the structure of water-wheels. Indicate their general structure by means of the following drawings:



Show how the power of water in waterfalls is utilised by means of turbines.

Illustrate the lock system in canals. Draw the following on the board:



Question the pupils as follows:

How will the boat get from one level to the other?

What will happen to the higher level when the lock is open?

What will happen to the lower level?

Let the pupils read about the canals in the United States and other countries, as, the Erie Canal, Panama Canal, Welland Canal, Suez Canal, Kiel Canal, etc. Draw a map on the board to illustrate the advantages of the Panama Canal. Take up docking facilities. Direct and question the pupils as follows:

Where are some of the docks near the school?

What docks are in the business sections?

Read the papers and see where the big steamships enter.

How long are some of these ships?

How long should a good dock be?

How deep must the water be?

Let the pupils look up the location of the more important docks. Have them read about the business done, the stores and supplies kept in the warehouses, etc.

Take up the use of heat and steam. Ask the pupils a few questions of the following nature:

How is this room heated in winter?

Where is the heat produced?

Why does coal burn more readily in a furnace?

Why do you blow to start a fire in the woods?

Point out the use of the draught. Pass around several burners used for the different incandescent lights. Let the pupils see where the gas enters, and where the air enters. Illustrate how heat is used to generate steam. Boil water in a beaker. Boil it in a test-tube. Show how the steam rushes up and causes an overflow. Fasten a piston in the test-tube, thus:



Heat the water till the steam lifts the piston and then remove the burner. Question the pupils, thus:

Suppose the piston were 'stuck' in the tube, what would have happened?

If the steam had been formed suddenly, what might have taken place?

If water is suddenly poured into a hot boiler, what usually occurs?

Have a steam engine in the classroom, and let one of the pupils operate it. Let the class see the action of the piston. Attach the engine to an axle, or to some toy machines. Do not try to explain the structure of the engine. Simply let the pupils see how the expansion of the steam forces the piston to work. Let the pupils read about the early inventors, and the different machines in use.

Acquaint the pupils with the workings of some of the simpler contrivances, as the microscope, the phonograph, the electric battery, etc. Have one or more simple microscopes in the room. Let

the pupils look at seeds, starch cells, cotton and other kinds of threads, cloth, paper, etc. Explain the use of the mirror at the bottom. Illustrate how impressions are made in the cylinder of the phonograph. Pass several old cylinders or discs among the pupils. Draw a cross section of the transmitter on the board. Call upon the pupils to tell how the needle acts, and how the membrane sends out the sounds. Secure a blank disc and make a record of the spelling words. If a pupil will loan a machine, use it in the class in this manner. Record other lists and outlines. In electricity, let the pupils construct simple batteries, connect them with bells, motors, etc. Use any material which the pupils may have. Explain how the sparker works in motorcars, and illustrate the use of the carbureter, etc. Keep in touch with different inventions, and keep on a chart clippings, pictures, etc., from popular and scientific journals.

Impress upon the pupils the necessity of conserving the natural resources of the country. Question them as follows:

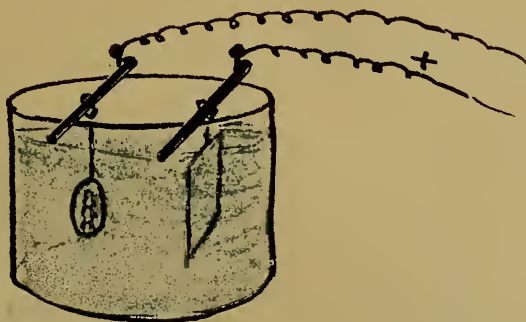
Where do we get all the wood that is used? The coal?
Suppose all the forests are gone? What becomes of the
land? The streams? The homes?

Let the pupils read how lumbering is carried on. Point out the need of cultivation and systematic planting of forests. Draw a diagram to show the rotation of crops, fallow land, etc. Have the pupils tell how the same process can be carried on with forest trees. Ask the class to note the wood now in use in the making of furniture, and the wood used in some of the older pieces of furniture. Let the class read about the wasteful method of hunting used by the Indian, and compare with them the wasteful methods of lumbering, fishing, etc., now in use.

4. Elementary science. *Seventh and eighth years.* Make use of the apparatus, machinery and situations which are met with in daily life, and which exemplify the elementary laws of physics. Use abstract experimentation only when the means mentioned are not at hand. For example, instead of dealing with the simple machines as such (lever, fulcrum, etc.), take up such topics as the derrick, dredge, claw hammer, etc., sliding down hill, unloading

a wagon, and so on. Begin with situations which are concrete and interesting, and then proceed to the more abstract work in mechanics and hydraulics. If possible, present the subject matter in the following order: electricity and magnetism, use of steam, use of water, heating and ventilation, instruments and apparatus which exemplify the laws of heat, light and sound, and lastly, the simple machines, gravity and the laws of motion.

Put together in the classroom an electric battery like the Leclanche cell or the gravity cell. Show the pupils how to amalgamate the zinc with mercury. Let the pupils construct cells for themselves. Show them how to electroplate. Draw the following diagram on the board to illustrate copper plating:



Arrange apparatus for plating objects, securing impressions of molds, etc. Let the class see how the current is applied to electric bells, lights, etc. Pass one or more bells among the pupils. Point out how the current magnetises the iron bars, and then is broken. In a series of lessons take up frictional electricity and magnetism. Show by experiment in the room the pith ball electroscope, the Leyden jar, the magnetised floating needle, attraction and repulsion of a compass needle by the poles of a magnet, induction, etc. Wherever possible, have the pupils construct apparatus and perform experiments for themselves.

Show how the properties of steam are turned to account in the steam engine. Boil some water in a beaker. Drop some coloring matter into the beaker as soon as the bubbles begin to rise. Question the class thus:

Why does the steam rise?
 Is the steam pulled up or pushed up?
 Why does it not push the water up?
 Which is heavier?

Place a piston in a test tube which has some water in it. Slowly heat the water. Operate a small steam engine. Explain the different parts to the class. Show how the driving wheel is attached to smaller wheels. Illustrate ventilation, heating, evaporation, stable equilibrium, etc., in the same manner. Question the class:

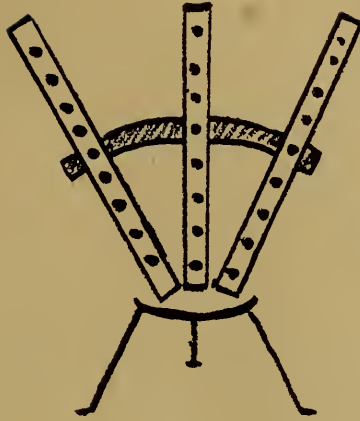
When a street dries, does the sun 'draw up' the vapor?
 Why does the vapor rise?
 Is it pulled up or pushed up?
 Why does the steam rise through the pipes of this building?
 What makes it lighter?

Float a small boat in a large glass receptacle filled with water. Draw the following on the board:



Point out that the amount of water displaced presses upwards and keeps the body at the top. By actual experiment illustrate and explain stable and unstable equilibrium, ventilation, the uses of the syphon, syringe and pump, and the general structure of sewers, aqueducts, wells, etc. Let the class read about winds, storms, etc.

By means of objects in daily use illustrate the laws of heat, light and sound. Arrange the following apparatus:



Let one strip be of iron, one of copper, and one of aluminum. Stick on each of these strips a row of wax balls. Heat the ends of the strips. Question the pupils:

From which strip do the wax balls drop first?

Which metal makes the best cooking utensil? Why?

Time the experiment. Blacken the ends of the strips with soot and repeat the experiment. Take the time. Rivet a bar of copper to one of iron, heat, and let the pupils explain which takes heat more readily. Perform other experiments to show that heat expands objects. Question the pupils:

When railroad tracks are laid, why is a space left between them?

Is this space smaller in winter or summer? Why?

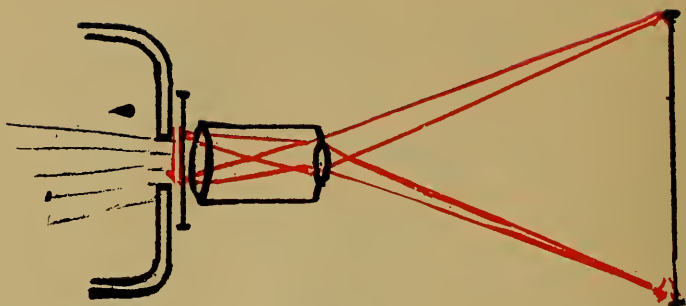
Is wood more porous in winter or summer?

When will it absorb more paint? Why?

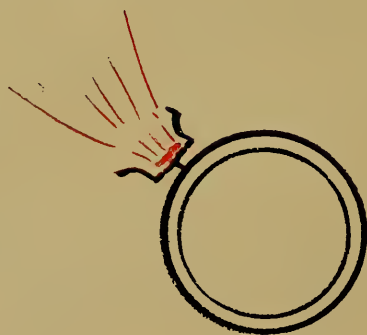
Why is wool so warm?

Why will loose, light clothing keep warm?

Make use of the magic lantern, microscope, etc., to illustrate the laws of light, and the phonograph, musical instrument, etc., to set forth the laws of sound. Illustrate the lantern by actual use in the classroom. Make the following drawing on the board:



Point out the use of the reflector and the lenses. Show by colored chart or drawing how the eye is a series of lenses. Explain what is meant by 'near-sight,' and 'far-sight.' Use the phonograph, pass around some old records, and illustrate how the sound is produced, by means of the following diagram :



Show how the bones of the ear transmit sound in much the same manner. In much the same way take up the sources of heat, light and sound, transmission, kinds, etc.

Have a fairly large derrick in the classroom. Let some of the pupils lift up different objects, as boxes, furniture, etc., and swing them to different positions. Question the pupils as follows :

What power is used with derricks in building?

Where is the steam produced?

Where is it applied?

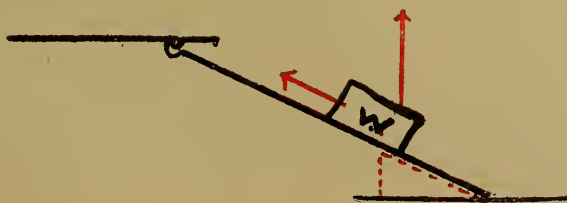
How does it move heavy objects?

Of what use is the derrick?

Let the pupils pick out the different parts of the derrick, the rope, the pulleys, mast, boom, wheel and axle, power, etc. In a series of lessons analyse the use of each of these parts. Have one or more single pulleys and double pulleys. By experiment show what is gained by the use of the movable pulley. Have the pupils point out in what other ways the movable pulley is used. Show what is gained by the use of the wheel and axle. Have pliers, nut crackers, claw hammers, etc., in the room and show how power is gained by means of the lever action involved. Let the pupils analyse the action of the crowbar, and point out the power, resistance and fulcrum. Return to the wheel and axle and show how the same principle applies. Have the pupils illustrate lever action by means of other tools, machines, etc. Make some drawings like the following on the board to show lever action:



Show how much an object weighs in the following positions:



Question the pupils as follows:

In what position does it weigh the most?

Why does it weigh less on the inclined plane?

In what two directions is the weight divided?

Why do men use an inclined plane to roll barrels on a wagon?

Why does water run down hill?

In the same way show how the wedge divides the impact into two parts, and how the screw is simply a form of wedge fastened to an axle. Have large models in the room and let some of the pupils

work them. Have the pupils work out exactly how much power is gained, or how it is distributed. Let them name and examine tools and machines which are combinations of the simple machines.

IV. MAN

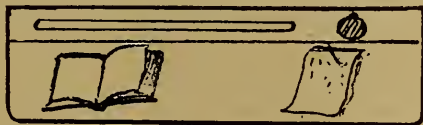
1. Forms of social behavior. Good habits. *First and second years.* Train the pupils in the use of the expressions, 'Good morning,' 'Good afternoon,' 'Yes, sir,' 'Yes, ma'am,' 'Please,' 'Thank you,' 'Excuse me.' Before beginning class work, greet the pupils with a 'Good morning, children,' and have them answer, 'Good morning, Miss ———'. Close the day with 'Good afternoon, children.' Have the pupils use the expressions, 'Please may I have,' 'Please let me have,' 'Please give me.' Do not give a pupil anything till he uses the proper expression. Insist on the use of 'Thank you.' Have these expressions neatly printed on large placards placed in front of the room. Give several lessons on the use of the expressions. Write the expression on the board. Call upon the class softly to repeat it. Then call upon a number of pupils to say it. Arrange simple dramatic scenes which call the different expressions into use, as, Mrs. Smith calls on Mrs. Brown to borrow some salt and loan the morning paper. Johnny goes into one or more stores and buys some things, A policeman or a nurse calls to receive instructions, A messenger delivers a parcel and waits for an answer, etc. Call for volunteers. Assign the parts and let the children act and use their own expressions. Refine the expressions, write them on the board, let pupils read them, and then call for a new set of actors.

Train the pupils in habits of personal^a neatness and cleanliness. Spend a set time each day on inspection of the pupil's shoes, hands, hair, books and desks. Direct and question somewhat as follows:

Look at your hands. Fingers, wrists, nails.
Hold up your hands if they are clean.
How do we clean our hands? Our nails?
How does pussy clean her paws?
How do the little birds clean themselves?

Have the pupils place their hands on the desks. Pass around the room and inspect hands. Commend the cleanest hands. Give

credits, or gold stars, or 'Neatness slips.' Examine the shoes. Line up the class and spend a moment or so in glancing at the shoes, praising, etc. Inspect the hair in the same manner. If possible have a box, brush, blacking, etc., in the room for the use of the children. Show the pupils how to arrange their desks, material, etc. Draw the following on the board:



Question and direct as follows:

See where we put the paper.
How is the inkwell, covered or uncovered?
Where do we place our books?
How should the floor be?

Give set lessons on how to arrange different objects. Let a pupil come to the desk of the teacher, and place books, papers, etc., properly. Have the pupils pile their things on the seats or desk tops, clean out the desks and carefully place books, hats, papers, etc., in their right places. Have them take one thing at a time, under direction.

Introduce the children to the right use of the knife, fork and spoon. Show them how to eat without making unseemly noises. Pass out toy forks and paper plates. Direct and question as follows:

Now we shall take some salad.
Where must we hold the fork?
Hold your forks high up, so.

Have the class go through the motions of eating. Insist that the children keep the mouth closed while chewing. Tell them to try to eat without making a noise. See that they keep their fingers high up and away from the prongs. Give a lesson on the use of the spoon. Pass out spoons and cups of water. Show them how to hold the spoon and how to drink from it. Let them use their spoons. Caution them from time to time, thus:

Dip away from you.

No, a horse makes a noise like that.

Keep your tongue back when you drink. Etc.

In the same manner let the class use the knife and fork properly. Teach them to use knife only for cutting, and to eat without making noises with the lips or mouth. Show them how to drink from a glass or cup, how to hold a glass, etc. Arrange dramatic scenes on, Receiving a guest, Holding a reception, Serving, etc.

2. Personal hygiene. Good habits. *Third and fourth years.*
Keep up lessons like those outlined above. In addition, give lessons on ventilation, personal cleanliness, proper feeding, use of the organs, etc. Light a small candle and cover it with a Mason jar. Have the pupils note how the candle slowly goes out. Arrange a ladder of two or three candles and repeat the experiment. Let the class see how the top candle goes out first. Show what the effect is when air is allowed to enter. Question the pupils:

Why do we open the windows at the top?

Why do we open them at the bottom?

Why should windows be open, even in the coldest weather?

Do you sleep in a room with an open window?

What things make the air impure?

Call the attention of the pupils to covered garbage cans, and uncovered garbage cans, clean streets and dirty streets, clean desks and dirty desks, etc. Have a committee inspect desks and closets at least once a week. Give breathing exercises. Show the pupils how to stand, inhale and exhale. Insist that they keep their heads up. Do not allow any pupil to stand or to sit with stooped shoulders or bent head. Caution them from time to time, 'Head up,' 'Feet flat,' 'Back straight,' etc.

Make the following drawing of a tooth upon the board:



Secure specimens of the teeth of cattle. Saw some crosswise, and some lengthwise. Pass the sections among the pupils. Tell them the use of the enamel. Show them how teeth decay. Question them as follows:

Suppose you should try to bite a pin or crack a nut with your teeth?

What takes place after the enamel is cracked?

Who has had a toothache?

How do you clean your teeth?

How do you pick your teeth?

Let the pupils see that decayed matter in the teeth acts much in the same manner as does an open garbage can. Emphasize the necessity of keeping the tooth brush away from others. Point out the action of the teeth on food and show the different kinds of teeth and the use of each kind. Let the pupils read paragraphs in some primer of hygiene.

Let the pupils see the need of having the skin clean. Question them as follows:

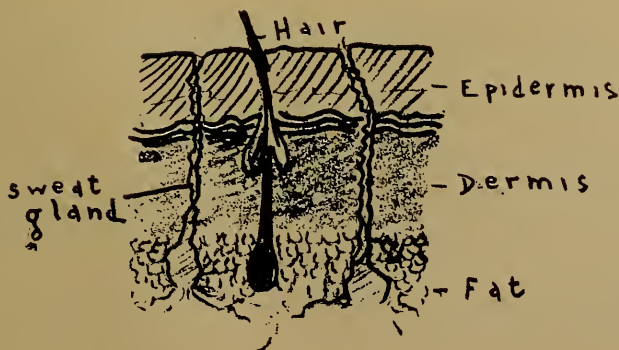
Why do you wash your hands? Face? Neck? Body?

What other reason can you give?

Look at the skin of your hands. Arms.

What are the things you see?

Make a chart which shows the structure of the skin, or draw the following on the board:

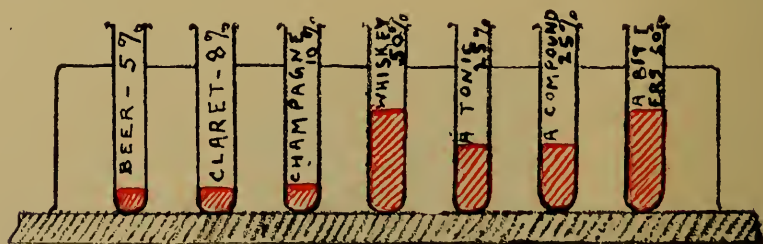


Point out the use of the pores, sweat glands, etc. Question the class:

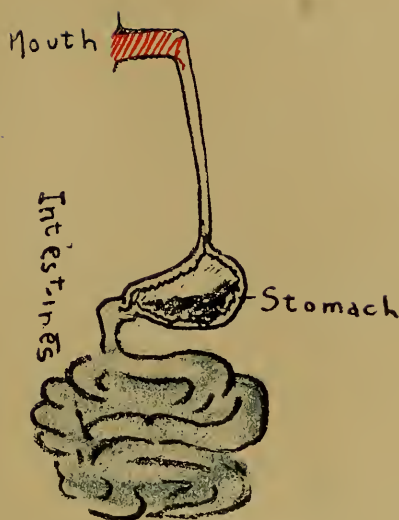
How many have had a blister on the fingers?
 Did you feel the pin or needle which you stuck through?
 Why is the skin under the blister so tender?

Let the pupils see the need of having dry clothing, and of changing any clothing which is wet, as underclothing, stockings, etc. Do not let pupils sit in the classroom with heavy sweaters on, or with mufflers around the neck. Explain why such practices are harmful. Encourage the children to take shower baths, to learn swimming, etc.

Impress upon the class the necessity of proper feeding. Secure some of the more highly colored candies, like lollipops, licorice sticks, etc. Take one or more which show decided streaks or lumps of color, wet them and mark white paper with the colors. Fasten the candy to the paper and exhibit to the class. Mix yellow water color, and soak white bread in it. Compare this with the highly colored cakes, rolls, buns, etc. Let the pupils collect labels which tell whether food is colored or not. Soak some colored foods in water and paint with the color obtained. Write on the board the names of some of the proper foods to eat, at breakfast, at luncheon, at dinner. Let the pupils read about the uses of different foods, the effect of alcohol on the stomach, arteries, conduct, etc. Draw the following diagrams on the board to illustrate the portion of alcohol which is in different drinks:



Describe how food is digested, absorbed, etc. Draw the following on the board:



Point out the need of chewing thoroughly, the use of gastric juice, the necessity of eating different kinds of food, and the like. Question the pupils, thus:

Suppose the food enters the stomach in an unchewed lump?
What happens to the gastric juice if we drink too much at meals?

Why must we not eat too little? Too much?

About how much does a child's stomach hold? A man's?

Trace the passage of a piece of bread to the mouth, the stomach, and the intestines. Describe the changes which take place. Bring out the waste of saliva in unnecessary chewing. Emphasise the injury done to the stomach by the use of alcoholic drinks. In a similar manner take up respiration, the evil effects of smoking, the proper use of the eyes, effective lighting, etc. Show pictures of the lungs, expanded and relaxed. Trace the passage of the air through the nostrils to the lungs. Describe how the blood is acted upon by the air. Trace the passage of dust or smoke to the lungs. Show the effects in the nostrils, air passages and lungs. Take a piece of raw meat and smoke it. Let the pupils read passages in a

primer of hygiene. In the same way present the structure and uses of the eye, and emphasise the necessity of cleanliness, proper lighting, the use of glasses, etc.

3. Dietetics. Good habits. *Fifth and sixth years.* Question the pupils on the different foods eaten, thus:

What did you eat yesterday? In the morning? At noon?

Name some other foods which you like.

Name some of the foods used almost every day.

What foods can you buy in this city?

As the pupils name the foods, write the names on the board as follows:

<u>Tissue builders</u>	<u>Heat and energy</u>	<u>Fats</u>	<u>Mineral salts</u>
beef, lamb, etc.	bread, cake, etc.	butter	celery
meats	rice	gravy	cabbage
cheese	potatoes	bacon	turnips
oatmeal	puddings	fat	onions
beans	candy	milk	apples
peas	milk	eggs	
lentils	eggs		
macaroni			
bread			
milk			
eggs			

Impress upon the class the necessity of having one of each kind of these foods in two or three meals a day, and the importance of having something more than coffee and rolls at breakfast. Question them:

What else can we eat at breakfast?

Why does a child eat so much?

Why does a laborer need more food than a clerk?

Why should a child eat more at breakfast than an old man?

Let the pupils form lists of substitutes for meat, bread, candy, etc. Write such lists on the board.

Show the pupils (boys as well as girls), the different methods of treating meats. Have small pieces of different kinds of meat. Fry, stew, boil, roast and make soup. In frying, heat a metal surface. Slightly grease the pan and throw the meat on it. Show how the sudden heating of the meat coagulates the surface and prevents the escape of the juices. In stewing, cut the meat into small pieces and let them stand in cold water. Add different vegetables, as, celery, greens, potatoes, tomatoes, carrots, etc., and let the mixture simmer. When meat is cooked put a large piece into boiling water for a few minutes. Then turn down the flame and let the meat slowly cook. In roasting or broiling, use great heat for the smaller pieces of meat, and a lower temperature for a large piece of meat. Question the pupils thus:

Who knows what a tape worm is?

What happens to the eggs of the worm in a fire?

What happens if the eggs are boiled? Fried? Roasted?

Why do we heat meats before eating them?

Show the class how heating makes the meat more tender and loosens the fibre. Compare with our own methods of cooking the methods of other races. In presenting the foregoing, do the actual cooking, etc., in the classroom. Let the pupils do the same at home and bring self-cooked meats at lunch, at a reception, etc.

Treat vegetables and fruits in the same manner. Get some carrots, potatoes, celery, etc. Take a carrot and cut part of it into small pieces. Boil the pieces. Pour out the water. Question the pupils:

Did the water have anything in it?

Did it take anything out of the carrot?

How can we keep everything that is in the carrot?

Cut up the rest of the carrot into large pieces, or put the whole piece into the pot. Boil it and mash the water in with the boiled carrot. Spice and add a sauce if necessary. Boil a potato in the skin. Let the pupils see how the skin contains almost all the juice that is in the potato. With other vegetables keep the water and mix it with the vegetable, or with the sauce. Show the pupils how

to preserve fruits. Get some apples or some cranberries. Peel and core the fruit. Cut apples into pieces, put into a pot, and add some water. Slowly boil. When soft, add sugar and shut off the heat. Cranberries or other berries should be washed, boiled and sweetened with sugar when soft. Do not boil long after the sugar is added.

Show the pupils the composition of different foods. Prepare some starch by scraping a potato to a pulp, and squeezing out the juice by means of a cloth bag. Allow the fluid to settle for a day. Make a paste and test with tincture of iodine (iodine dissolved in alcohol). Test other foods in this manner and show the presence of starch. Use corn, bananas, bread, milk etc. Show the presence of protein by means of the nitric acid test. Add some nitric acid to milk, and heat in a test tube. Add nitric acid to some meat. Arrange a series of test tubes containing respectively, starch solution, fat, grape sugar, salt solution, milk, white of egg and raw beef juice. Add nitric acid to each and boil. Let the class announce whether or not there is any protein present. Let the class read about proteins, foods, etc.

Take up the presentation of some of the more important protein foods. Question the class as follows:

Which is more nourishing, sirloin steak or soup meat?

Why do you say that?

Is soup nourishing? Has it much food value? Why?

Show the food values of the different meats by means of the following table:

Meat	Protein	Fat	Carbohy.
Sirloin	18.9	18.5	—
Chuck	19.2	15.4	—
Cross ribs	15.9	28.2	—
Flank	20.8	11.3	—

Point out that the cheaper cuts of meat are just as nutritious as those which cost more money, that good soup meat is as nutritious as the best steak. Take up the food values of milk, eggs and cheese. Construct the following table:

Food	Protein	Fat	Carbohy.
Milk	3.3	4.0	5.0
Eggs	13.4	10.5	0.53
Store cheese	28.8	35.9	—
Cream cheese	25.9	33.7	2.4
Swiss cheese	27.6	34.9	1.3

In a similar manner show the food values of other proteins, as beans, peas, lentils, oatmeal, fish, fowl, etc.

Present vegetables in the same way. Illustrate the composition of the foods as follows:



Construct the following tables:

Food	Protein	Carbo.	Fat	Salts	Water
Potato	1.30	20.00	0.15	1.00	76.00
Cabbage	1.89	4.87	0.20	1.23	89.97
Carrot	1.23	9.17	0.30	1.02	86.79
Turnip	1.54	8.32	0.21	0.91	87.80
Spinach	3.49	4.44	0.58	2.09	88.47

Question the pupils:

Why can't we make a full meal on potatoes or cabbage?

What other foods are usually added? Why?

How will milk increase the food value of potatoes and milk?

What is the effect of adding corned beef to cabbage?

Take up the question of the economics of food. Construct the following table on the board:

Food	Protein	Carbo.	Fat	Salts	Water
Beef	20.96	0.46	5.41	1.14	72.03
Steak	20.40	0.40	1.97	1.90	74.70
Salmon	21.60	—	12.72	1.39	64.29
Cod	16.23	—	0.33	1.36	72.25
Egg	12.55	0.53	12.11	1.12	73.67
Milk	3.66	4.48	3.62	0.68	87.22
Beans	22.26	57.50	1.50	2.50	13.00
Macaroni	10.98	76.05	0.45	0.64	11.60
Oatmeal	14.70	69.80	6.20	1.50	7.80

Question the pupils as follows:

What foods can be substituted for meat?

Why can meat, beans, macaroni and eggs be considered a heavy meal?

Which of these foods ought to be omitted if meat is in the meal?

What other vegetables should be eaten with meat?

Which foods are cheaper than meat?

Is steak any better as a food than soup meat? Why?

Why are beans so good a food?

Show the pupils what the expression 'artificially colored' means. Secure samples of bread, home-made cake and cakes highly colored. Mix some yellow water color and soak a piece of bread in it. Compare the colored bread with the colored cake. Contrast the dull color of the home-made cake with the bright color of the other cakes. Take a piece of highly colored candy, as, a lollipop. Dip it in water and paint or mark a white paper with it. Show the small flecks of solid color sometimes found in the candy. In the same manner compare 'artificially colored' peas, cherries, etc., with peas, cherries, etc., which have been cooked and not colored.

By means of charts or blackboard drawings illustrate the amount of alcohol in different drinks, as shown above.

Let the pupils read about the effects of alcohol on the system. Keep a chart on which are pasted newspaper accounts of accidents, crimes, etc., due to excessive use of alcohol. Let pupils tell about the actions of intoxicated men, tramps, etc., whom they have seen. Write topics on the board thus:

Health—Long life—Work—Friends—Growth—Intelligence

Have pupils compare a man who uses alcohol excessively with one who does not, according to these heads. Treat tobacco in a similar fashion.

4. Elementary human biology. *Seventh and eighth years.* Let the pupils go through breathing exercises. Question them thus:

What did we do just now? Why?

Why were the windows open at the top? At the bottom?

What did we breathe in? Out?

Burn a candle and cover it with a large glass jar. Have pupils explain why it went out. Have the lungs of a pig or sheep in the room. Show them to the class. Point out the trachea or windpipe, and its division into the bronchial tubes. Cut or scrape away portions of the lung, and show the further subdivisions of the bronchial tubes. Cut off a piece of lung and let it float in a jar of water. Question the pupils:

Why does it float?

How does the air get to the cells?

Suppose we hold the lungs over a smoky fire?

How do they dry ham? Beef?

What is the effect of hot smoke on the lungs?

Why is smoking bad for the lungs?

Show charts or drawings which illustrate how the air passes through the nostrils and into the lungs. Let the pupil read about respiration, ventilation, etc.

Show how the oxygen reaches the blood, thus:

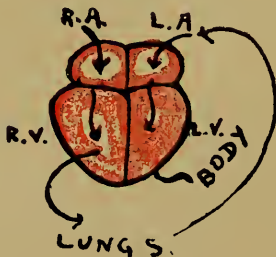


Question the pupils as follows:

What causes the blood to flow into the lungs?

Where is the heart situated?

Make the following drawing on the board to illustrate the heart action:



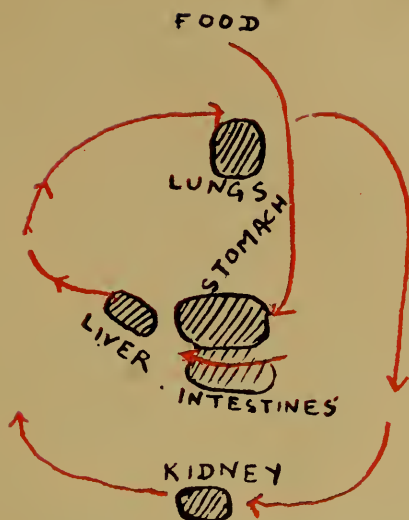
Have a pig's or a calf's heart in the room. Cut it across to show the walls of the ventricles. Have pupils tell why the left ventricle is thicker than the right ventricle.

Illustrate by blackboard drawings, charts, etc., how food is changed into blood. Question the pupils somewhat as follows:

Where does the blood come from?

How is it made?

Draw the following on the board:



Explain the action of gastric juice on the protein foods. Trace the digestion of the fats and the final digestion of starch and protein in the small intestines. Show how absorption takes place through the small intestines into the blood vessels. Let the pupils trace the history of a mouthful of bread, of a piece of meat, etc. Explain the action of saliva on the starchy foods. Question the pupils, thus:

Why should we chew our food well?

How will rapid eating cause dyspepsia?

Why are lumps of food imperfectly digested?

Let the pupils read the effects of alcohol on the linings of the stomach. Emphasise the necessity of resting after eating, the effects of overeating, etc.

Take up with the pupils the care and structure of the teeth, the skin and the sense organs. Question the pupils, thus:

Why does a garbage pail smell so?

What happens to food which remains in the mouth?

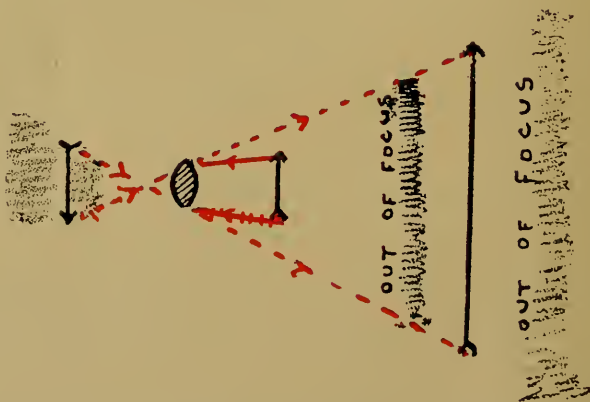
What causes bad breath?

How may an unclean mouth poison some of the food?

Emphasize the necessity of keeping the teeth clean. Explain the structure of the teeth by means of the diagram drawn above.

Have samples of the teeth of cattle and pass them among the pupils. Explain the uses of the different kinds of teeth. Present the care, structure and use of the skin in a similar manner.

Show to the class the care, use, and structure of the eyes. Test the pupils by means of an eye-testing chart. Use any good chart. Let a pupil take the record of the others, *e. g.*, $\frac{18}{20}$ in which the 20 indicates distance in feet at which the letters should be seen by the normal eye, and the 18, etc., the distance in feet at which the letters are actually seen. Test both right (R) and left (L) eyes. Use a small card to cover one eye while the other eye is being tested. Pass some magnifying glasses among the pupils. Have them focus the printed page. Let them move the page out of focus. Illustrate the result by means of the following diagrams:



Emphasise the need of securing glasses if necessary. Show how light should fall upon the matter to be observed or looked at, and not in the eye. Draw the following to illustrate:



Emphasize the importance of using a table lamp which will throw the light on the printed page, on sewing, etc. In much the same way illustrate the use and structure of the ear.

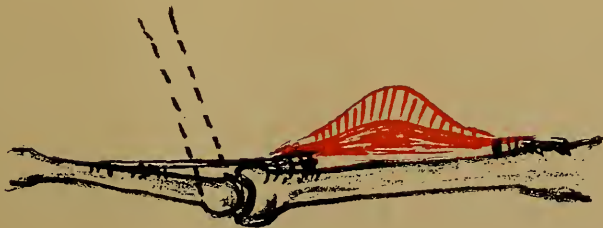
Take up the body as a whole, muscles, skeleton, etc. Let the class go through exercises of standing, stretching, facing, bending, breathing, etc. Question the pupils as follows:

While standing, why do we not crumple up?

What keeps us straight?

Why is it that we can bend?

Have the pupils grasp some object, as a book, or pencil. Let each pupil feel his forearm while he tightens or loosens his grasp. Have him note the action of the tendons in the wrist. Illustrate the muscle action by means of the following drawing:



Secure some chicken or turkey legs, and show how the tendons, when pulled, move the claws. Dissect part of a leg of lamb, mutton, or pork, and show the layers of muscle. Show how these layers differ from the heart muscle. Emphasise the importance of exercise, rest, and proper diet. In the same manner present the different bones of the body, the lever action, the kind of joints, etc.

V. GENERAL SUGGESTIONS

Secure enough material for the lesson, if possible, an object or specimen for each pupil. Let the pupils bring in material. Do not try to make up a lesson out of 'mere talk.' Get pictures and diagrams from magazines, business houses, etc. Arrange the illustrations in sets which can be passed among the pupils. Mount the larger pictures on charts. Keep a cabinet for the more permanent specimens. In general, deal with situations which surround the pupil in the home, the shop, and the immediate neighborhood. Explain and analyse such situations and from them draw the special form of life or machine which is to be presented.

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